Response
DOE is committed to using Native American monitors on field crews when significant data recovery (collection of resources) at a site is necessary. Archaeological contractors are on call to monitor known sites for potential impacts from project activities. In addition, Native Americans are welcome to visit the site to monitor locations during Native American Interaction Program field trips, or during special trips, as necessary.

7.5.6 SOCIOECONOMICS

7.5.6 (119)
Comment - 2 comments summarized
Commenters expressed concern that Esmeralda County was not adequately addressed in the Draft EIS even though a rail corridor is in or near Esmeralda County. Commenters expressed concern that the EIS discusses the impacts to employment and real disposable income for Clark, Nye, and Lincoln Counties, but does not mention Esmeralda County.

Response
The EIS presents information for counties within the defined region of influence (Clark, Nye, and Lincoln Counties) and the Rest of Nevada. The Rest of Nevada is an aggregate of the 14 remaining Nevada Counties. The socioeconomic simulation model DOE used to estimate potential impacts indicated that the rest of Nevada (including Esmeralda County) would experience some direct economic effects from spending by workers for food and lodging, but incremental changes to the economy would be very small.

7.5.6 (130)
Comment - 43 comments summarized
Several commenters stated that the Draft EIS was inadequate because of reliance on 1990 Census data. Commenters specifically pointed out that the rapid growth of towns and counties in Southern Nevada made 1990 Census population information out of date with regard to both the repository and transportation corridors. These commenters identified alternative sources of population data such as the Nevada State Demographer's Office and Nye County documents that provide data on current and projected population.

Other commenters indicated that the socioeconomic sections of the Draft EIS underestimated county and town populations and projections, most often citing Nye County and Pahrump. These comments included population projections for areas within the 80-kilometer (50-mile) radiological monitoring grid discussed in Section 3.1.8.1 of the EIS

A number of commenters indicated that DOE should project population growth in the region of influence. Several commenters took issue with the long-term population assumptions based on the National Academy of Sciences recommendations that long-term projections would likely be more in error than using present day conditions.

Response
When preparing the Draft EIS, DOE based the Nevada population estimates on the then-most-recent available information (1996 to 1997) from the Bureau of the Census. The Final EIS uses Nevada population data that incorporates data developed by and received from county and State officials.

DOE used the Regional Economic Models, Inc. (REMI) Economic and Demographic Forecasting System (EDFS) 53-sector computer model to project population growth in the regions of influence and to evaluate socioeconomic impacts from the Proposed Action. For the Final EIS, this model incorporates population estimates from 1998 to 1999 provided by Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the Rest of Nevada, DOE used State Demographer estimates as input to the REMI model. DOE compared these locally derived estimates to the 2000 data provided by the Bureau of the Census.

In general, the Bureau of the Census is the preferred source of information for use in DOE socioeconomic analyses because it provides a greater level of consistency across geopolitical boundaries than most other data sources. Bureau information is based on the direct collection of information, while other information sources often rely either on some form of the Bureau information or on proxies such as telephone and electrical connections to households and businesses. The information for a particular variable provided by local and state agencies or private vendors can

differ, sometimes significantly, from one another because of the use of different methods, source data, level of detail and terminology. In addition, Bureau of the Census information is readily available and population estimates are updated annually.

In response to comments, however, DOE has updated its socioeconomic baseline projections and estimated impacts for the Final EIS to reflect the most recent data available from the State of Nevada and local communities, as well as the 2000 Census population summary data for Nevada.

In March 2001, the Bureau of the Census released its county-level population data for the State of Nevada based on 2000 Census. DOE then updated the baseline projection to 2000 Census data for the State of Nevada. The 2000 Census data baseline was then compared to baseline projections utilizing State and local data. Sensitivity analyses of the two data sets indicated that the differences between the two baselines were small. DOE's population projections and impact estimates in the Final EIS are based on the most recent available information from State and local sources.

Similarly, DOE's population projections to 2035 within 80 kilometers (50 miles) of the repository use the most recent available information from State and local sources. DOE determined the number of individuals within a particular sector within the 80-kilometer area based on surveys conducted in 2000. Figure 3-25 of the EIS provides the projected population distribution for 2035.

The Final EIS baseline uses REMI computer model projections of population totals for each county to 2035. The Clark County projections correspond to those used by the University of Nevada, Las Vegas (DIRS 136698–Riddel and Schwer 1999), which are also based on the REMI EDFS 53-sector model. The Nye County population projections for the Final EIS are based on data supplied by Nye County (DIRS 150996-Williams 2000; DIRS 148140-PIC 1998) that are based, in part, on a REMI 14-sector model. For Lincoln County and the rest of Nevada, population projections by the Nevada State Demographer's Office (Nevada Statistical Abstract) through 2018 were used as inputs to population projections for these areas. DOE used data from these sources to project the population distribution within the 80-kilometer radiological monitoring grid. For Inyo County, DOE used the California Department of Finance projections (DIRS 105294-State of California 1998) to project population distributions.

To update the health and safety analyses associated with transportation in Nevada, DOE used the baseline population for each county in the region of influence and forecast to 2035 to scale impacts from results based on the 1990 census. For example, if a county's population was estimated to double from 1990 to 2035, DOE assumed that the population along the associated rail corridor also would double; radiological impacts were then doubled accordingly. In certain locales, however, such as around the planned Las Vegas Beltway, DOE used local sources of population information to better reflect population growth trends (in this instance information from a report prepared for the City of North Las Vegas).

As discussed in Section 5.2.4.1 of the EIS, DOE accepts the position of the National Academy of Sciences that it is not possible to accurately predict future human behavior. DOE used a default position of today's conditions. For the Final EIS, DOE has projected baseline population and other economic measures to 2035.

7.5.6 (231)
Comment - 6 comments summarized
Several commenters said that the EIS needs to address a number of direct impacts to Lander County. The listing of issues include real estate property values, socioeconomic impacts, revenue sources for southern Lander County (fishing, hunting, and recreation), tourism, shortage of law enforcement officers, mining, ranching, and grazing allotments.

Response
DOE developed a list of assumptions to determine projected economic and demographic changes in Nevada from the construction and operation of the proposed repository. The Regional Economic Models, Inc. (REMI) computer model used in these determinations incorporates four regions. Three of the regions are Clark, Nye, and Lincoln Counties. The fourth region is the Rest of Nevada, comprising the other 14 counties in the state (including Lander County).

DOE assumed for railroad construction that workers would be nominally assigned to base camps according to an even split by the number of camps. All railroad construction workers would commute weekly from Clark County to the trailer camps outside Clark County. The base camps would subcontract to provide mess facilities for its workers. For purposes of the economic analysis, it was assumed that monies expended on eating and drinking would enter the economy through retail establishments, although most meals would be eaten at the base camps. Operations workers would live in the county where the route branches off the main line, except for the Carlin routes, for which they would live in Elko.

Given these assumptions, the total estimated incremental population increases for the 14 counties in the Rest of Nevada attributed to the Carlin Corridor would be about 170 individuals in the peak year. Total employment associated with the Carlin Corridor for the 14 counties for the peak year would be about 90. DOE does not believe there would be discernible direct or indirect impacts to the infrastructure or revenue sources (such as public safety or recreation) for any of these counties, including Lander, because 90 individuals is a small percentage of the current and projected population of the Rest of Nevada.

DOE did not address potential changes in property values because of the dynamic nature of real estate and the uncontrollable factors that can influence property values. Similarly, definitive information is not available on specific tracts of land (grazing allotments, mining claims, or otherwise) that could be required for a given transportation alternative. For any land that would be required or otherwise affected, the Department would compensate landowners fairly under the Federal acquisition procedures, as applicable. If the Department had to exercise its rights of eminent domain, it would follow applicable laws and regulations.

7.5.6 (255)
Comment - 3 comments summarized
Several commenters indicated that the Supplement to the Draft EIS did not address the socioeconomic impacts associated with the aging facility.

Response
Section 3.1.8 of the Supplement to the Draft EIS includes a discussion of the potential socioeconomic impacts associated with the surface aging of spent nuclear fuel. Because about half of the operational period for an aging facility would occur after 2035, beyond the credible limits of the REMI computer model utilized to estimate socioeconomic impacts, DOE did not quantity impacts beyond 2035.

7.5.6 (338)
Comment - EIS000055 / 0002
Provide a version of Fig 3-21, pg 3-80 with Nye town boundaries and 1997 population distribution.

Response
Figure 3-25 of the EIS depicts 2035 (not 1997) population distribution within 80 kilometers (50 miles) of the proposed repository. The distribution in the Final EIS is based upon 2000 population estimates incorporating housing counts estimated through windshield surveys and electric utility data. While it would be possible to overlay existing town boundaries on the radiological monitoring grid, DOE has not done so for the EIS because the focus of the assessment is to establish the relative number of residents in a given direction and distance from the repository. Potential health and safety impacts to individuals or populations groups are a function of direction and distance and independent of municipal boundaries or governmental jurisdictions.

7.5.6 (420)
Comment - EIS000071 / 0018
With the cessation of nuclear weapons testing in 1992, Nye County has made substantial efforts to plan for its economic future in the US 95 corridor.

The DEIS does not recognize these plans and does not reflect the DOE obligation to ensure that the Yucca Mountain project will not thwart those plans.

Response
Consistent with Council on Environmental Quality regulations (40 CFR Parts 1500 to 1508), DOE considered past, present, and reasonably foreseeable actions in its assessment of cumulative impacts and has reviewed a number of actions, both current and proposed, to determine relevance. The expression "reasonably foreseeable" refers to future actions where there is some reasonable expectation that the action will occur.

Cumulative impacts are discussed in Chapter 8 of the EIS. DOE developed these analyses by identifying other actions whose effects could coincide in time and space with the effects from the repository (examples include the underground testing at the Nevada Test Site, the proposed Desert Space Museum, and low-level radioactive waste disposal at the Nevada Test Site and in Beatty, Nevada). The identification of these past, present, and reasonably foreseeable actions (including past, current and future actions at the Nevada Test Site) was based on a review of resource plans prepared by Federal agencies, other EISs and environmental assessments, tribal meeting records, and other documents developed by federal, state, local and private organizations including those submitted by Nye County. DOE has followed the Nye County economic development activities, particularly the development of the Desert Space Museum and adjacent business park. Other activities that have been followed include the possible siting of Kistler Aerospace and the VentureStar® Program. Thus far, these actions remain in the very early idea or planning. DOE would continue to have dialogue with and continue to monitor planning activities. The Final EIS includes factual changes and clarifications, and DOE believes that the EIS adequately characterizes the cumulative impacts associated with the proposed repository.

The documents cited in Section 3.2.2.1.1 of the EIS are source documents used by DOE for land use features and possible future actions taking place within the transportation corridors. The more notable land use features and influences that exist or could exist on lands within the transportation corridors are presented in Chapter 6 of the EIS. The potential impacts of each transportation alternative in Nevada are described in Section 6.3 of the EIS. Included are estimates of impacts to health and safety in Nevada from incident-free waste transport to Yucca Mountain and from transportation accidents, as well as regional socioeconomic impacts to potentially affected counties (see Table 6-4 of the EIS). Section 6.3 and Appendix J.3 of the EIS reflect planning/zoning designations in completed land use planning documents prepared by public entities with jurisdiction over transportation routes in Nevada. Section 6.3 of the EIS establishes the scope of land use information deemed useful for assessing potential impacts of transportation implementing alternatives in Nevada.

7.5.6 (464)
Comment - EIS000113 / 0003
I know demographically we don't -- we're not even a pimple on a gnat's ass, and I say that because we will be the only place within fifty miles of a major DOE thing that is under 400,000 people.

So if this is saying we don't count.

This is a moral question and should be answered.
We're just as important as any place else in the nation, we think, and we hope.

Response
DOE agrees that small communities are just as important as large communities with regard to potential effects to individuals. As a consequence, the Department has estimated potential health and safety impacts by population sector and to the hypothetical maximally exposed individual.

7.5.6 (479)
Comment - EIS000084 / 0001
One of the criteria used in selecting Yucca Mountain was according to your EIS the sparsely populated area around Yucca Mountain. Well, this sparsely populated area of land around Yucca Mountain grows crops and feeds 5,000 milk cows which produces twenty percent of Nevada's milk production. This dairy [Ponderosa Dairy in Amargosa Valley] ships out 128 million pounds of milk annually to 30 million people throughout California and the West Coast. In the future event of juvenile nuclear contamination, this dairy would be a direct conduit of that contamination to 30 million people. Yet this large dairy industry is not even mentioned in your report. Now, how could a comprehensive and well researched and documented EIS miss this? I don't know. We have also invested

over 1 million dollars in producing and marketing the first organic milk in Nevada. Who is going to want to drink organic milk produced next to the largest nuclear dump in the world? I want to know that.

Response
Section 3.1.1.1 of the EIS acknowledges there are farming and dairy operations about 30 kilometers (19 miles) south of the proposed repository in the Amargosa Valley. The concerns the commenter raises relate ultimately to the marketability of milk produced in the vicinity of Yucca Mountain. While DOE has not addressed marketing issues, it has assessed the potential health and safety issues for all applicable environmental pathways associated with the repository in Chapter 4 of the EIS. In addition, the Department has programs in place that includes testing to ensure the safety of milk produced near its sites. In Nevada, DOE has established a milk surveillance network to monitor the potential uptake of radioisotopes in milk near the Nevada Test Site. The network includes commercial dairies and family-owned milk cows and goats representing the major milksheds within 300 kilometers (186 miles) of the Test Site. In southern Nye County, this includes the Pahrump Dairy and Ponderosa Dairy. The program specifically identifies the use of farmland and dairies in Amargosa Valley and other areas within 80 kilometers (50 miles) of the proposed repository.

7.5.6 (480)
Comment - EIS000084 / 0002
In your EIS draft, page 3-75, it states that 110 people are employed in agriculture, forestry and fisheries in all of Nye County. We [Ponderosa Dairy in Amargosa Valley) alone employ over a hundred people directly. We alone. Here is yet another serious error in just simple basic facts. 27 million dollars and they can't figure out how many farm workers there are in Nye County? I'm really having some serious doubts now.

Response
Page 3-75 of the Draft EIS reported 110 employees in the agriculture, forestry, and fisheries sector for 1995. The Draft EIS, however, also reported 210 employees in the farming sector for 1995. These data and job sector classifications are from the U.S. Department of Commerce, Bureau of Economic Analyses, Regional Economic Information System. This is the same data source Nye County used in its socioeconomic reports prepared by the Planning Information Corporation. The information for 2000 reported in the Final EIS shows levels of employment in the farming and agricultural services sectors. The agricultural sector is 110 (the same as in 1995), while farming is 260 (about 50 employees higher).

7.5.6 (529)
Comment - EIS000118 / 0001
Our basic preliminary comments on the socioeconomics are that the EIS does not sufficiently deal with -- sort of reflect ground truth in Nye County communities as they have evolved in the last few years in the 1990s.

It doesn't include [an] adequate reflection of what Nye County communities, especially southern Nye communities, are -- could become over the long period of time of this project, and it does not address some of the actions of the Commission and other agencies regarding land development and activities of Nye County.

A few quick examples. On page -- I think it's 3-17 [3-73] of the [Draft] EIS, it says that Nye County had a population of 26,000 in 1997, and it also says that no community level population estimates were available for 1991 or 1995.

Nye County has prepared community level population estimates since before the 1990 census on a quarterly basis using a consistent method with methods fully explained and with results fully distributed since or before the 1990 census and people in Pahrump think our estimates are conservative.

But our estimate for 1997 is 31,000, not 26,000, and our estimates for today are in the 37,000 area. The point is that the EIS assumes that Yucca Mountain is going to be imposed on basically a static community, not one that is changed as much as this one has.

Another quick example is that all the radiation exposure estimates in the EIS assume that there will be 28,000 people within fifty miles of the repository. That includes all of Pahrump.

Nye County has published population projections that say that by 2010, which is when this project is scheduled to go operational, there will be at least 47,100 population within fifty miles and in Nye County.

That doesn't include California, that doesn't include Indian Springs, within fifty miles, and that estimate it says in the projection doesn't include some of the economic development matters. It doesn't include some of the extraordinary subdivision developments in Pahrump.

Since 1992, when nuclear weapons testing was stopped at the Nevada Test Site, the DOE Nevada has sought out to think through new kinds of missions for the test site, and Nye County has made a considerable effort sort of reflecting that to develop ideas of economic development for the US 95 corridor, Indian Springs all the way up to Tonopah.

These are ambitious, they are innovative and they reflect a vision for Nye County's future that should not just be done for nuclear weapons testing, low-level radioactive test and high-level radioactive waste.

And so the use of the 28,000 estimate reflects a notion that this is being imposed on a community that is static at a level that was passed back in 1995.

Response

In the area of socioeconomic impacts, the primary uncertainties that could be analyzed are those associated with projections of population and economic growth. The Final EIS incorporates Nevada population data developed by and received from county and state officials. In response to comments, DOE has updated its population estimates in the regions of influence to reflect the most recent state and local information. For the repository- and transportation-related regions of influence, DOE performed Regional Economic Models, Inc. (REMI) computer model simulations to establish an updated population baseline by accounting for population estimates and projections provided by county governments. In the absence of county information, population estimates and projections from the Nevada State Demographer's Office were used. The updated population baselines were then used to estimate populations for Clark, Nye, and Lincoln Counties and the Rest of Nevada through 2035. In addition, DOE prepared estimates based on the actual 2000 Census data for that year and projections of growth rates provided by local and state agencies. A sensitivity analysis revealed only small differences in the two projections.

The Final EIS baseline used REMI model projections of population totals for each Nevada county in the region of influence and the rest of Nevada until 2035. DOE based inputs to Nye County projections for the Final EIS on data identified in Nye County documents (DIRS 150996-Williams 2000; DIRS 148140-PIC 1998). The Nye County projections provided during the comment response period are based in part on a REMI 14-sector model. Nye County projections and source documents were used to project population distributions within the 80-kilometer (50-mile) radiological monitoring grid.

Consistent with Council on Environmental Quality regulations (40 CFR Parts 1500 to 1508), DOE considered past, present, and reasonably foreseeable actions in its assessment of cumulative impacts and has reviewed a number of actions both current and proposed to determine relevance. The expression "reasonably foreseeable" refers to future actions where there is some reasonable expectation that the action could occur.

Such as a Proposed Action under analysis, a project that has already started, or a future action that has obligated funding.

Cumulative impacts are discussed in Chapter 8 of the EIS. DOE developed these analyses by identifying other actions whose effects could coincide in time and space with the effects from the repository (examples include the underground testing at the Nevada Test Site, the proposed Desert Space Museum, and low-level radioactive waste disposal at the Nevada Test Site and in Beatty, Nevada). The identification of these past, present, and reasonably foreseeable actions (including past, current and future actions at the Nevada Test Site) was based on a review of resource plans prepared by Federal agencies, other EISs and environmental assessments, tribal meeting records, and other documents developed by Federal, state, local, and private organizations. The Final EIS includes factual changes and clarifications, and DOE believes that the EIS adequately characterizes the cumulative impacts associated with the proposed repository.

DOE has followed the Nye County economic development activities, particularly the development of the Desert Space Museum and adjacent business park. Other activities that have been followed include the possible siting of Kistler Aerospace and the VentureStar® program. Thus far, these actions remain in the very early idea or planning stage. DOE would continue to have dialogue with, and continue to monitor the planning activities of the affected units of local government to ensure they are taken into account in the decision-making process for the proposed repository.

7.5.6 (558)
Comment - EIS000227 / 0006
The draft EIS completely ignores the potential for major and widespread socioeconomic impacts from the project, both in Nevada and in cities and communities throughout the nation.

Response
DOE has assessed the potential socioeconomic impacts associated with development of a repository at the Yucca Mountain. The Department estimated the incremental impacts at the county level for Clark, Lincoln, and Nye Counties, and the rest of the 14 Nevada Counties aggregately. It used the REMI EDFS-53 Forecasting and Simulation Model. The model segments age, ethnicity, and gender based on 600 cohorts to predict population. The model also calculates births, deaths, and aging. Employment and fiscal changes to the economy are derived from inter-industry relationships, labor markets, and national/worldwide economic variables. Based on the results of the model outputs, DOE does not believe the incremental increases in socioeconomic parameters represents large or widespread economic impacts.

From the national perspective, DOE did not analyze the potential socioeconomic impacts of transportation because all spent nuclear fuel and high-level radioactive waste shipments would be over existing highways and railroads. The shipments would represent a very small fraction of total national highway and railroad traffic (0.008 percent of truck kilometers and 0.007 percent of railcar kilometers).

With regard to suggestions that major or widespread socioeconomic impacts would arise through perceptions of the repository or transportation of spent nuclear fuel and high-level radioactive waste, DOE has determined that it could not measure any potential impacts in a meaningful way. This is discussed in Section 2.5.4 of the Final EIS and Appendix N.

7.5.6 (603)
Comment - EIS000127 / 0020
It says in here that Pahrump has all the services we need to take care of the problem. We don't even have a hospital.

Response
Section 3.1.7.5 of the EIS notes that there are no hospitals in Southern Nye County. Section 4.1.6.2.5 states that the Proposed Action would increase demand for public services in pathway and other portions of Southern Nye County. After a decision was made on the proposed repository, and transportation modes and routes, local jurisdictions would be better able to identify the likely economic, social, public health and safety, and environmental impacts that would be the basis for a request for economic assistance, which might include assistance in providing additional medical and emergency response facilities, under Section 116(c) of the NWPA.

In the Final EIS, DOE has expanded its socioeconomic discussions in Chapter 3 to provide a clarified basis for understanding the potential impacts described in Chapter 4. This discussion includes a projection of baseline parameters through 2035 based on the most recently available information and assumptions. Section 116(c)(2)(A)(i) of the NWPA states that "the Secretary shall provide financial and technical assistance to the State of Nevada and any affected unit of local government to mitigate the impact on such [an affected unit of local government or the State of Nevada] of the development of [a] repository and the characterization of [the Yucca Mountain] site." Such assistance can be given to mitigate likely "economic, social, public health and safety, and environmental impacts." Within that broad framework, neither Section 116 nor any other provision of the NWPA limits the impacts that are subject to assistance under Section 116 to the environmental impacts considered in this EIS.

Under the NWPA, the Section 116 impact assistance review process and this EIS process are distinct from one another, and the implementation of one is not dependent on the implementation of the other. Thus, the provision of

assistance under Section 116 would not necessarily be limited either by the impacts identified in this EIS or by its findings on such impacts. Any decision to provide assistance under Section 116 would be based on an evaluation of a report submitted by an affected unit of local government or the State of Nevada pursuant to Section 116 to document likely economic, social, public health and safety, and environmental impacts. If the proposed repository was to become operational, DOE would enter into discussions with the State of Nevada and affected units of local government and consider appropriate support and mitigation measures.

7.5.6 (606)
Comment - EIS000127 / 0024
There's one thing left I'd like to say. You talk about worst case scenarios. What about the socioeconomic impacts of a worst case scenario that nobody in the State of Nevada wants Yucca Mountain; not the government, not the people.

If they try to ram it down Nevada's throat, what if Nevada tries to secede from the union? That's a socioeconomic impact that could be very real.

You got a lot of militias out here who don't like the Federal Government, anyway. So that is something that really should be considered. What about if we just say, "No go."

Response
DOE recognizes that there is considerable opposition to the proposed Yucca Mountain Repository. The decision as to whether or not the repository would be implemented as proposed lies with the President, the State of Nevada, the United States Congress, and the Nuclear Regulatory Commission.

7.5.6 (1130)
Comment - EIS000270 / 0013
Factors that give rise to public concerns about and opposition to approval of the Yucca Mountain site include:

Adoption of arbitrarily limited, unrealistic scenarios, cultural and economic systems and characteristics, to describe future conditions and situations affecting future populations.

Response
DOE has assessed the potential socioeconomic impacts associated with the proposed Yucca Mountain Project. The Department estimated the incremental impacts at the county level for Clark, Lincoln, and Nye Counties, and the rest of the 14 Nevada Counties aggregately. It used the REMI EDFS-53 Forecasting and Simulation Model. The model segments age, ethnicity, and gender based on 600 cohorts to predict population. The model also calculates births, deaths, and aging. Employment and fiscal changes to the economy are derived from inter-industry relationships, labor markets, and national and worldwide economic variables. Based on the results of the model outputs, DOE does not believe the incremental increases in socioeconomic parameters represent large or widespread economic impacts.

From the national perspective, DOE did not analyze the potential socioeconomic impacts of transportation because all spent nuclear fuel and high-level radioactive waste shipments would be over existing highways and railroads. The shipments would represent a very small fraction of total national highway and railroad traffic (0.008 percent of truck kilometers and 0.007 percent of railcar kilometers).

7.5.6 (1184)
Comment - EIS000114 / 0005
If you read the Environmental Impact Statement, they estimate our population in Pahrump to be 16,800 in the year 2000. We're now double that.

If you look at the baseline population estimates and you draw the graph, it comes from his office -- we're going to be guaranteed 45,000 people in the year 2005 before they'll even start construction up on the railway.

What was amazing to me about the summary or in the impact statement was the bomb that went off. This is a radius of fifty miles. Pahrump's in it.

It shows population 16,800, and they don't want to address sabotage.

Isn't it amazing that Mr. Reagan allowed us to take in ten percent of outside nuclear storage to include high-level plutonium, and in our impact statement, they say that sabotage is very unlikely, yet we're going to be out here in the middle of nowhere on a railway and all it's going to take is a couple tons of dynamite to blow it up and to get to that plutonium.

Response
The Final EIS uses Nevada population estimates that incorporate data developed by and received from county and State officials. In the case of Nye County population estimates, DOE incorporated the latest population estimates received from Nye County.

Sabotage is discussed in Sections 4.1.8.3, 6.2.4.2.3, 7.2.1.15, and 7.2.2.9 of the EIS. The commenter is correct in that portions of Pahrump are within 80 kilometers (50 miles) of the proposed repository. Figure 3-20 of the EIS shows the areas that DOE regularly monitors for radiological releases to the environment.

7.5.6 (1187)
Comment - EIS000114 / 0008
The population studies suck. You're wrong. You're wrong.

Response
The Final EIS uses Nevada population estimates that incorporate data developed by and received from County and State officials.

7.5.6 (2652)
Comment - EIS000409 / 0009
Socio & Economic hardships. Under Executive Order 12866 (58 *FR* 7735, Oct. 4, 1993) and other OMB reviewed Presidential Orders will affect the economies of many places in the nation. YM could potentially materially alter, as well as adverse economic impacts on a city like Chicago or a town like Pahrump ($100 million or more impact).

Response
Executive Order 12866, "Regulatory Planning and Review," sets forth guidance for a more efficient regulatory process.

DOE agrees that Yucca Mountain activities could affect small and large communities. As a consequence, the Department has estimated the potential socioeconomic impacts to areas that could receive the most impacts. The concern is not with the size of the community, but with the distribution of people in the potentially affected areas and with the incremental change in a given parameter.

7.5.6 (4388)
Comment - EIS001399 / 0003
This city is the fastest growing city in the United States with a growth rate of over 400%. It is estimated that we will have a population of influence within the next 10 years of approximately 80,000. The draft statement has not addressed the fiscal impact to the city or its businesses. We suggest that the Environmental Draft Statement be rejected on the basis of incomplete or outdated data and assumptions that do not include the City of Mesquite.

Response
DOE has evaluated socioeconomic impacts of its actions on Clark County, based on the historic residential patterns of its employees who live in Clark County; the majority of new employees associated with the Yucca Mountain Project would reside in the Las Vegas urban area. Potential fiscal impacts on the county level were captured through estimation of real disposable income and state and local spending.

7.5.6 (5037)
Comment - EIS001520 / 0005
Population data used in the EIS should be updated from the 1990 census figures and should be extrapolated to estimate continued population growth for a reasonable time in the future.

The draft EIS uses 1990 census data for those analyses that require estimates of population sizes. Because of rapid growth in the Las Vegas Valley area, the 1990 census data are out of date. More recent population estimates and twenty-year projections of future growth are available from the Nevada State Demographer's Office at the University of Nevada, Reno. The Board recommends that the State Demographer's population projections be used when preparing impact estimates for the final EIS.

Response
The Final EIS incorporates Nevada population data developed by and received from county and State officials.

After DOE issued the Draft EIS and the Supplement to the Draft EIS and reviewed public comments on these documents, it started revising its socioeconomic baseline projections and estimated impacts for the Final EIS utilizing population data from the State of Nevada and local communities. The revisions include an estimated baseline projection to 2035 for the socioeconomic parameters considered in the EIS.

In March 2001, while DOE was preparing the Final EIS, the Bureau of the Census released its county-level population data for the State of Nevada based on the 2000 Census. DOE prepared an additional baseline projection anchored to the 2000 Census data for the State of Nevada.

DOE compared the 2000 Census baseline to the baseline projections incorporating State and local data. Sensitivity analyses revealed that the incremental differences between the two baselines were generally small.

DOE elected to incorporate the most recently available information from state and local sources as a basis for impact assessment in the Final EIS in consideration of the critiques received from commenters for the following reasons:

- Analyses showed that the differences or potential socioeconomic impacts associated with Yucca Mountain Repository activities are basically insensitive to which baseline is used.

- There is some uncertainty involving what the final totals will be for the Census data at the county level.

- The State of Nevada and local communities have not yet made available their independent estimates based on the 2000 Census data.

Similarly, DOE based its estimated population distribution within 80 kilometers (50 miles) of the repository on projections to 2035, utilizing the information available from State and local sources. DOE based the allocation of individuals to a particular sector within the 80-kilometer area on surveys conducted in 2000. Figure 3-25 of the EIS provides the population distribution for 2035.

The Final EIS baseline uses REMI model projections of population totals for each county until 2035. DOE's Clark County projections correspond to those used by the University of Nevada-Las Vegas (DIRS 136698-Riddel and Schwer 1999), which also uses the REMI Economic and Demographic Forecasting System (EDFS) 53-sector model. DOE used inputs to the Nye County projections for the Final EIS on data identified in Nye County documents (DIRS 150996-Williams 2000; DIRS 148140-PIC 1998). The Nye County projections provided during the Draft EIS public comment period are based in part on a REMI 14-sector model. DOE used Lincoln County and Rest of Nevada projections through 2018 from the Nevada State Demographer's Office (DIRS 155350-State of Nevada 1999) as inputs to population projections for these areas. DOE used the county projections and Nye County source documents to project population distribution within the 80-kilometer (50-mile) radiological monitoring grid. DOE used California Department of Finance projections (DIRS 150294-State of California 1998) for Inyo County, California, as the basis for projecting population distributions for Inyo County sections of the radiological monitoring grid.

To update the health and safety analyses with transportation in Nevada, DOE used the baseline population for each county in the region of influence and forecast to 2035 to scale impacts from results based on the 1990 Census. For example, if a county's estimated population would double from 1990 to 2035, DOE assumed that the population along the associated rail corridor also would double, and doubled the radiological impacts accordingly. In certain locales, however, such as around the planned Las Vegas Beltway, DOE used local sources of population information to better reflect population growth trends (in this instance, information from a report prepared for the City of Las Vegas).

For other Nevada counties, Nevada State Demographer projections (DIRS 155350-State of Nevada 1999) are used as the basis for population projections used in analyses of accidents near transportation corridors and for health effects modeling. Estimates of historic populations of towns and cities in Nevada are obtained from the Nevada State Demographer's Office or from county documents, as appropriate.

7.5.6 (5208)
Comment - EIS001443 / 0032
Socioeconomic impact analysis in the DEIS is limited to regional impacts on employment, housing and other standard economic indicators. There is no analysis of potential socioeconomic disturbances due to repository operation and transportation under both normal and accident conditions. Conversely, the DEIS lacks discussion of the impact of socioeconomic changes on the operation of the repository. Growth rates and development expectations along transportation corridors, and the implications of same for the evolution of new transportation risks during the 30-year span of repository operations are not considered.

Response
The EIS does assess potential socioeconomic impacts of each repository and transportation scenario. Section 4.1.6.2 contains impact estimates for each phase of repository construction and operations for the three counties most likely to be affected (Clark, Nye, and Lincoln) and for the remaining 14 counties in Nevada together. Sections 6.3.2.2 and 6.3.3 contain socioeconomic impact estimates for each rail corridor and Nevada heavy-haul truck route, respectively.

The analyses for each scenario estimate the projected change in a number of socioeconomic parameters through 2035. The changes are based on baseline projected growth trends and economic activity for each potentially affected county and the Rest of Nevada, with Yucca Mountain-associated influences factored in as potential activities are scheduled to occur.

The EIS does not present quantitative socioeconomic analysis for areas outside Nevada since no effects from repository construction, operating and monitoring, and closure are expected and since all transportation outside Nevada would occur on existing corridors and would constitute only a small portion of overall traffic on those corridors.

While the socioeconomic analyses focus on normal operations, the EIS also analyzes a range of accident scenarios. These scenarios are based on probabilities, with no definitive knowledge of when or where an accident could occur. Therefore, an attempt to assess potential socioeconomic impacts of an accident to a specific local economy would be highly speculative.

7.5.6 (5285)
Comment - EIS000968 / 0006
Population figures used in the DEIS to describe the population along the routes is from 1990 census. Clark County has been the fastest growing area of the country for the past 10 years. This would then effect the numbers in the exposure figures that are calculated.

The study should identify special populations along proposed routes as well. The Local Emergency Planning Committee identified 37 schools, 23 hotels (6,000+ rooms), 1 major health care facility and 1 special event facility within 1/2 mile of the proposed routes.

Response
The Final EIS uses Nevada population data that reflect data developed by and received from county and state officials.

The REMI Economic and Demographic Forecasting System (EDFS) 53-sector computer model incorporates population estimates from recent years (1998 to 1999) provided by officials from Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the Rest of Nevada, the REMI model uses State Demographer estimates for the period.

The Final EIS baseline uses REMI model projections of population totals for each county until 2035. DOE's Clark County projections correspond to those used by the University of Nevada, Las Vegas (DIRS 136698-Riddel and Schwer 1999), which also uses the REMI EDFS 53-sector model.

To update the health and safety analyses with transportation in Nevada, DOE used the baseline population for each county in the region of influence and forecast to 2035 to scale impacts from results based on the 1990 census. For example, if a county's estimated population would double from 1990 to 2035, DOE assumed that the population along the associated rail corridor also would double, and doubled the radiological impacts accordingly. In certain locales, however, such as around the planned Las Vegas Beltway, DOE used local sources of population information to better reflect population growth trends (in this instance, information from a report prepared for the City of North Las Vegas).

For other Nevada counties, Nevada State Demographer projections (Budget and Planning Division 1999) are used for population projections used in analyses of accidents near transportation corridors and for health effects modeling. Estimates of historical populations of towns and cities in Nevada are obtained from the Nevada State Demographer's Office or from county documents, as appropriate.

The Yucca Mountain Draft EIS used U.S. Census data to estimate the number of people in the general population who would live near the highway and rail routes that were selected for analysis. However, it was not possible or practical to identify each special or transient population that would be in each of the thousands of Census blocks crossed by the routes analyzed. However, the use of Census data for populations along real routes selected for the analysis ensured that estimated impacts would be calculated for the health and safety of real people -- not generic populations along generic routes. Because resident-in-care facilities for the elderly are included in Census data, the analysis included the impacts to these populations. Furthermore, impacts to temporary occupants of schools and hospitals that would be near routes and whose temporary occupancy is not included in Census data were included in the analysis, because the analysis assumed that adults, children, and hospital patients should be present in their homes when every shipment passes. Thus, while it is certain that the approach of using Census data to estimate the number of people who would be exposed to passing shipments leaves some uncounted, it is also certain that the analysis counts some who would not be affected. For the purpose of estimating health and safety risks to populations along routes, the approach provides reasonable estimates and does not exclude special populations.

7.5.6 (5548)
Comment - EIS001887 / 0187
Page 3-76; Section 3.1.7.3 - Payments Equal to Taxes

The Draft EIS briefly discusses the Payments Equal to Taxes (PETT) paid to State and local governments under Section 116 of the Nuclear Waste Policy Act. It is unclear what purpose this discussion serves since it is not part of a larger description of State and local revenues. The Draft EIS should have described the status of State and local government revenue systems (of which PETT is a very small element) as a basis for examining the potential impacts of the Proposed Action on State and local government finances. As noted in comments on Section 4 of the Draft EIS, the proposed Yucca Mountain project has the potential to result in significant impacts to Nevada's tourism-based economy, leading to fewer tourist visits and to reduced gaming, sales, room, and related taxes. Because of the State's unique revenue system and the way sales and gaming taxes are collected and distributed to local governments, even a relatively small decline in tourism can have significant impacts to State and local government revenues. An understanding and explication of Nevada's unique revenue system is a prerequisite for carrying out any meaningful socioeconomic impacts assessment.

Response
DOE believes that the EIS description of socioeconomic components at the State level is appropriate. The analysis considered the entire State of Nevada. DOE structured the information in the EIS into four regions – Clark County, Nye County, Lincoln County, and the Rest of Nevada, which is a compilation of the 14 remaining counties. DOE used the same economic parameters to estimate the potential impacts of each alternative on each region. DOE believes the analyses provide a reasonable representation of impact. Furthermore, attempts to assess fiscal changes at the agency level would not provide discriminating information for the decisionmaker.

Regarding potential impacts to "Nevada's tourism-based economy," over the past several years DOE has received other comments that it should analyze the socioeconomic effects of perception-based impacts on business, tourism, property values, and other economic and quality-of-life issues. While DOE agrees stigmatization could result in adverse impacts under some scenarios, it is not inevitable or measurable, and such stigmatization would likely be an after-effect of unpredictable future events. As a consequence, DOE addressed but did not attempt to quantify potential impacts from risk perception or stigma in the Final EIS. This is discussed in Section 2.5.4 and Appendix N of the Final EIS.

Regarding impact mitigation measures and "Nevada's unique revenue system," DOE will not speculate on what local governments or agencies feel that they might need to do to serve their citizenry, nor will it comment on the State's preferred fiscal structure. The Department would, however, enter into discussions with the State of Nevada and affected units of local government and consider appropriate support and mitigation measures.

Section 116 (c) of the NWPA provides a process by which DOE and the State of Nevada or local governments can negotiate for compensation outside the National Environmental Protection Agency framework.

7.5.6 (5574)
Comment - EIS001887 / 0200
Page 3-114; Section 3.2.2.1.6 - Socioeconomics

The Draft EIS is deficient in its description of the socioeconomic component of the affected environment. The Draft EIS fails to include any description of socioeconomic conditions/factors at the State level that stand to be impacted by the Proposed Action. State-level revenues and expenditures, such as costs and other impacts to State agencies affected by the project (such as the State Department of Transportation, Department of Motor Vehicles and Public Safety, the State Health Division, and other agencies) and impacts to the State's major economic sector are all missing from the Draft EIS -- either in Section 3 or in subsequent sections on impact assessment.

Please refer to previous comments regarding the inappropriateness of limiting the socioeconomic scope of the Draft EIS to just three counties in DOE's truncated "region of influence."

See detailed comments regarding the inadequacy of DOE treatment of socioeconomic conditions and impacts in comments on Section 4 of the Draft EIS.

Response
DOE believes that the description of socioeconomic components at the State level is adequate. The economic and demographic simulations that DOE performed using the REMI EDFS-53 Forecasting and Simulation Model derived fiscal changes to the economy from interindustry relationships (including the Eating and Drinking Places and Hotel Sectors of the Standard Industrial Code), labor markets, and national and worldwide economic variables.

The analyses considered the entire State of Nevada. DOE structured the information presented in the EIS into four regions – Clark County, Nye County, Lincoln County, and the Rest of Nevada, which is an aggregate of the 14 remaining Nevada counties. DOE estimated the potential impacts of each alternative on the same economic parameters for each region. One of the parameters was change in State and local spending. DOE believes the analytical structure provides a reasonable representation of impacts. Further, attempts to assess fiscal changes at the agency level would not provide discriminating information.

7.5.6 (5638)
Comment - EIS001887 / 0261
Page 4-105; Section 4.2.1.2.6 - Impacts to Socioeconomics from Retrieval

The Draft EIS treatment of socioeconomic impacts of retrieval (limiting them to merely the effects of employment during the retrieval period) is entirely inadequate and grossly understates the real impacts associated with such a dramatic and far reaching event.

The Draft EIS should comprehensively examine the impacts of the retrieval scenario on the State of Nevada and on the State's principal economic sector. (See comments on Socioeconomics for Section 4.1.6 above and contained in Appendix I of these comments.) The decision to remove waste from a Yucca Mountain facility will undoubtedly be accompanied by considerable national and international media attention. The decision will have been made amidst major public and political controversy and concern regarding the safety of the facility. Such a situation will have considerable stigmatizing potential that could easily spill over to the State and the State's tourism industries. In many ways, the need to retrieve waste would be a worst case situation for generating broad and potentially substantial economic impacts statewide, since it would mean that the repository's waste isolation systems had failed and that such failure was receiving major media attention.

Response
DOE is required to maintain the ability to retrieve emplaced waste for at least 50 years after the start of emplacement and may preserve the retrieval option for up to 300 years after the completion of emplacement. Because potential retrieval actions are not part of the Proposed Action, and are assumed to be needed only far in the future, DOE did not quantify potential socioeconomic impacts beyond its current modeling capabilities. However, DOE assumes that socioeconomic impacts of retrieval would be of a magnitude similar to those of emplacement.

Assessing the perceived impact of the retrieval on quality-of-life variables or the impact of "stigma" is generally problematic because it does not necessarily depend on the actual physical effects or risks of the proposed action, but the negative perception of those effects or risks by the public. While DOE agrees stigmatization could result in adverse impacts under some scenarios, it is not inevitable or measurable, and such stigmatization would likely be an after-effect of unpredictable future events. As a consequence, DOE addressed but did not attempt to quantify potential impacts from risk perception or stigma in the Final EIS. This issue is discussed in Section 2.5.4 and Appendix N of the Final EIS.

7.5.6 (5993)
Comment - EIS001879 / 0019
The Draft EIS estimates Nye County's population at 18,000 in 1990, 24,000 in 1995 and 26,000 in 2000 (pg. 3-78). It elsewhere estimates the 1997 population of Nye County at 26,000, and the 1997 population of the community of Pahrump at 19,000 (pg. 3-73). The Draft EIS estimates the year 2000 population within a 50-mile radius of the proposed repository at about 28,000 of which 25,600 are residents of Nye County (pg. 3-79, 80).

The Draft EIS ignores state and local population monitoring and projection information, and ignores locally approved economic development plans. The Draft EIS characterizes Nye County as a community that has been relatively static in the 1990s, and which can be expected to remain static through the first decade of the 21st century and throughout the emplacement period. It seriously underestimates the current and potential population within a 50-mile radius of Yucca Mountain -- the population that is the most at risk of exposure to radiological contamination from emplacement of highly radioactive wastes at the geologic repository.

Nye County Conditions During the 1990s

As noted above, the Draft EIS estimates the population of the site county at 18,000 in 1990 and 26,000 in the year 2000, suggesting an average annual population growth rate of 3.75 percent in the 1990s. Nye County has monitored community population, using accepted estimation data and procedures, on a quarterly basis since the 1990 census. These estimates show that Nye County's population has grown at over twice the average annual rate assumed in the Draft EIS. This growth rate (8.1 percent) is more rapid that [then] that of the State of Nevada (7.0 percent), the Mountain West Region (2.5 percent) or the nation as a whole (1.0 percent). The Nye County community of Pahrump has grown at a 14.5 percent average annual rate during the 1990s.[1]

Economic and demographic conditions in the site county have been dynamic, not static, during the 1990s. They should not be expected to become static in future decades. There is no valid basis to assume that the Yucca Mountain site is in a community that can be expected to remain sparsely populated and static over the next decades and centuries.

If the communities affected by the Yucca Mountain Project can reasonably be expected to be dynamic, not static, during the construction and operation periods at Yucca Mountain, and if the dynamic elements are aspects that have been promoted and advocated by Nye County's elected commission, then it becomes an obligation of the proponent to ensure that its project does not, directly or indirectly, thwart Nye County's desired economic future.

Comparison of State and Local Population Monitoring Methods

Nye County's population estimates have been consistently above those of the State of Nevada, especially since 1994.[2] In 1998, the county's estimate was 4,300 persons (14.4 percent) above that of the State Demographer.

The State Demographer's estimates have used housing vacancy rates, which in 1999 were demonstrated to be about twice the actual rate. By contrast, Nye County's estimate uses active residential utility accounts, thus avoiding the vacancy factor. Also, the State Demographer averages an estimate based on the housing unit method with an estimate based on employment. Since a very large number of DOE employees are in-commuters to Nye County worksites, employment-based estimates are unreliable in Nye County. By contrast, Nye County's estimate uses a housing unit method only.

Nye County Growth

The Draft EIS presents no projections of socioeconomic conditions in the county and communities most affected by the Yucca Mountain Project. By not addressing other economic potentials for the site county, the EIS avoids the question whether the repository program, by raising concerns about the potential radiological contamination beyond the site boundary, could thwart other desired economic development that has been supported and advocated by the Nye County community and its elected officials.

Nye County population is projected to reach 54,000 by 2010, the State Demographer's "Middle" Projection, and could reach 62,000, which is the State Demographer's "High" Projection. Either projection reflects a higher average annual growth rate than that projected for the State (3.2 percent) or the nation (0.8 percent).[3] Consistent with these projections, in the community of Pahrump can be projected to grow at a 6.4 percent average annual rate. While the percentage growth rate in Pahrump is expected to decline, the population increase could be almost 2,500 persons annually over the coming decade, up from about 2,100 persons annually in the 1990s.

Using a respected economic model, Nye County has prepared a "baseline" projection in which the County's population increases to 54,000 in 2010. This projection, which is consistent with the State Demographer's "middle" projection for the County, does not reflect special economic events, some of which the County has addressed in separate assessments.[4] Thus, not only have economic and demographic conditions in the site county been dynamic in the last decade of the 20th century, they are projected, by both the State and the County, to be dynamic in the first decade of the 21st century. Nye County does not offer Yucca Mountain a site community that will remain sparsely populated and static over the life of the project.

Nye County Population and Current Baseline Projections

Nye County has examined the economic impacts of several potential economic events not reflected in its baseline projections. One of these alone, the development of two subdivision communities in Pahrump that are proposed for build-out over the next decade, could add 30,000 persons to Nye County's population, thus exceeding the State's "high" projection for Nye County in the year 2020.[5]

Since the end of the Cold War in 1992, Nye County has made special efforts to devise a new economic future for the US-95 corridor in which development historically has been complicated by the proximity of nuclear weapons testing conducted at the NTS. These efforts are taking shape, and are being advanced in a project referred to as the "Science and Technology Corridor." Nye County communities and the Nye County Board of Commissioners have

supported the economic proposals, and do not wish them to be jeopardized by the development of a Yucca Mountain repository.

Economic Contribution of Yucca Mountain Project

The Draft EIS does not address changes in the traditional management of the DOE's activity in Nevada, changes that have long been advocated by Nye County. Nor does it address the consequence of a continuation of current management practices. This consequence is that the Yucca Mountain Project makes a minor contribution to Nye County economy, while posing potential threats to other desirable development within the US-95 corridor and the 50-mile radius for radiological exposure calculation. The repository depicted in the Draft EIS poses a potential threat to the site county's desired post-Cold War economic future, without providing a guarantee that the project will not threaten that future, or even an economic basis for Nye County to accept the additional risk imposed by the transfer of the nation's entire inventory of highly radioactive commercial and defense wastes.

Nye County's economic impact analyses show that the Yucca Mountain Project made a very limited contribution to the economy of the site county in 1999. Of about $112 million in Gross Regional Product attributed to the Yucca Mountain Project in the State of Nevada, only $8.1 million (7.3 percent) occurred in the site county. The estimates reflect traditional DOE management of its activities in Nevada, patterns that the Draft EIS suggests DOE expects to continue in the future.[6]

The current contribution of the YMP to Nye County's economy is much smaller than that of DOE/NV ($47.8 million), or of two dairies operating in Nye County ($12.4 million), or of the proposed Desert Space Station Science Museum and its visitors ($13.1 million).[7]

Nye County is concerned that the repository project, a project that makes little contribution to County's economy, will jeopardize other desired economic efforts that the County has worked hard to identify and promote. The EIS must address what measures the DOE will adopt if the proposed repository results in a loss of economic opportunity. Nye County believes that it should not be required to accept the risk associated with the repository without the benefit of appropriate mitigation.

Population Within the Radiologic Risk Zone

The Draft EIS estimates the 1997 population within a 50-mile radius of Yucca Mountain at 19,340, of which 16,700 is in Nye County.[8] Nye County's population monitoring program estimates the Nye County population within the radius used for calculations of radiological risk at 24,700 persons; this estimate is 4.1 percent above the Draft EIS estimate for Beatty, 7.7 percent above Draft EIS estimate for Amargosa Valley, and 57.5 percent above Draft EIS estimate for Pahrump.[9]

The Draft EIS estimates year 2000 population within a 50-mile radius of Yucca Mountain at about 28,000 persons, of which 25,600 are in Nye County (pg. 3-80). Nye County's baseline population projections estimate the County population within the radius used for calculations of radiological risk at 32,500 persons; this estimate is 26.4 percent above the Draft EIS estimate for Beatty, 11.8 percent above the Draft EIS estimate for Amargosa Valley, and 28.1 percent above the Draft EIS estimate for Pahrump.[10]

Nye County's baseline projections for 2010 place 47,900 persons within the 50-mile radius used in calculation of radiological risk, a figure 85 percent greater than the Draft EIS year 2000 estimate. Other special economic events could easily increase this figure to three times the Draft EIS year 2000 estimate.

Baseline Projections For Nye County

It is apparent that baseline model runs were conducted in preparing estimates of the Draft EIS estimates of the economic impacts of the Yucca Mountain Project from 2010 through 2035 (pg. 4-44). However, these baseline projections are not presented or discussed in the Draft EIS projection. Thus, the Draft EIS presents no information about the context of the socioeconomic conditions affected by the Yucca Mountain Project in Nye County, nor does it recognize the ongoing local economic development efforts aimed at improving the post-Cold War economic conditions. There is no recognition by the DOE of any intent to avoid harm to this locally planned economic future.

[1] See Figure 1: Estimates for the U.S. and the Mountain West Region (AZ, CO, ID, MT, NV, NM, UT, WY) are based on data from the U.S. Census (State Population Estimates: Annual Time Series: ST-99-3). Estimates for the State of Nevada are based on data from the NV Department of Taxation & NV State Demographer. Estimates for Nye County and Pahrump are based on data from the Nye County Population Monitoring Program.

[2] See Figure 2: The State Demographer's estimates include the initial revision of the estimate for 1999. The Nye County estimates are from the County's Population Monitoring Program. Note: The State's 1998 estimates are 6.2 percent above those of the Census for the State of Nevada, and 3.2 percent above those of the Census for Nye County (See U.S. Census: CO-98-2).

[3] See Figure 3: U.S. forecast from U.S. Census "Resident Population Series (March 1996, Middle Series). Nevada and Nye County forecasts from Nevada State Demographer's Office: "Population Estimates (1997) and Forecasts (1998-2018)". Pahrump forecast based on the State Demographer's forecast for Nye County, and applies Nye County estimates of the percentage of county population growth in Pahrump.

[4] See "Baseline Economic and Demographic Projections for Nye County, Nevada", Nye County Repository Program, January 1998.

[5] See "Nye County Economic-Demographic Reports: #10", Nye County Department of Natural Resources and Federal Facilities, December 1999.

[6] See: Nye County Economic-Demographic Reports: #1, Nye County Department of Natural Resources and Federal Facilities, December 1999.

[7] See Figures 4 & 5: Based on Nye County Economic-Demographic Reports #1, #6, #7, #3. Nye County Department of Natural Resources and Federal Facilities, December 1999.

[8] Based on DOE estimates of population within 50-miles of the repository site: 1997 (Quarter 1-4) and 1998 (Quarter 1), as requested from DOE.

[9] See Figures 6a-c: Nye County Population Monitoring Program.

[10] See Figures 7a-c: "Baseline Economic and Demographic Projections for Nye County, Nevada," Nye County Department of Natural Resources and Federal Facilities, January 1998, and Nye County Economic-Demographic Reports.

Response

DOE appreciates the breadth of this comment and the information provided. The final EIS reflects some of the issues raised and this response provides a capsule of how DOE has taken steps to incorporate Nye County's opinions into its assessments.

Nye County Conditions During the 1990s and Nye County Growth

DOE acknowledges Southern Nevada, including Nye County, has been and continues to be one of the fastest growing areas in the country. As noted in Section 3.1.7.1 of the EIS, Nye County and Pahrump are experiencing growth caused primarily by in-migrating retirees and the development of master planned communities. Nye County has about 32,500 residents in 2000, having experienced an 82.7-percent growth in the 1990s. DOE agrees that although the annual growth rate experienced in the 1990s is likely to slow, the population should continue to grow at a rate of 2 to 4 percent a year in this decade. Clark County is expected to continue to lead the population growth in Southern Nevada for the foreseeable future.

Population Monitoring Methods and Baseline Projections

The REMI Economic and Demographic Forecasting System 53-sector computer model incorporates population estimates from recent years provided by officials from Nye County for the socioeconomic baseline projected

through 2035. DOE compared the locally derived estimates to the 2000 data provided by the U.S. Bureau of the Census.

Inputs to the Nye County projections for the Final EIS are based on data identified in Nye County documents (DIRS 150996-Williams 2000; DIRS 148140-PIC 1998). The Nye County projections provided during the comment response period are based in part on a REMI 14-sector model. The county projections and Nye County source documents were used to project population distribution within the 80-kilometer (50-mile) radiological monitoring grid.

Economic Contribution of the Yucca Mountain Project

DOE agrees with the Nye County assessment that, as currently configured, the Yucca Mountain Project economic impact in Nye County is relatively minor, although the Payments-Equal-to-Taxes monies in accordance with Section 116(c)(3)(A) of the NWPA are provided (see Appendix M of the EIS). However, should the construction and operation of a repository be authorized, there would be an increased impact in Nye County, as discussed in Chapter 4 of the EIS. DOE does not believe these impacts would be large.

DOE has followed with interest the Nye County economic development activities, particularly the development of the Desert Space Museum and adjacent business park. Other activities that have been followed include the possible siting of Kistler Aerospace and the VentureStar® program. Thus far, these remain in the early idea or planning stage. Should they come to fruition, DOE does not believe that the proposed repository would have any impact on their development. Chapter 8 of the EIS discusses these and other potential cumulative impacts of the proposed repository.

Suggested management changes by DOE that would require or provide incentives to firms or employees to locate in Nye County are not analyzed within the scope of the EIS and are not contemplated under the National Environmental Policy Act.

With regard to mitigation under Council on Environmental Quality regulations implementing the National Environmental Policy Act (40 CFR 1508.20), mitigation includes activities that (1) avoid the impact altogether by not taking a certain action or parts of an action; (2) minimize impacts by limiting the degree or magnitude of the action and its implementation; (3) repair, rehabilitate, or restore the affected environment; (4) reduce or eliminate impacts over time by preservation or maintenance operations during the life of the action; or (5) compensate for the impact by replacing or substituting resources or environments.

Section 116(c) of the NWPA states that "the Secretary [of Energy] shall provide financial and technical assistance to [an affected unit of local government or the State of Nevada] … to mitigate the impact on such [an affected unit of local government or the State of Nevada] of the development of [a] repository and the characterization of [the Yucca Mountain] site." Such assistance can be given to mitigate likely "economic, social, public health and safety, and environmental impacts." Within that broad framework, neither Section 116 nor any other provision of the Act limits the potential scope of impacts that are appropriate for consideration under Section 116 to the environmental impacts considered in this EIS. Any decision to provide assistance under Section 116 would be based in part on an evaluation a report submitted by an affected unit of local government or the State of Nevada pursuant to Section 116(c)(2) to document likely economic, social, public health and safety, and environmental impacts.

Population Within the Radiological Risk Zone

Figure 3-25 of the EIS depicts population distribution within 80 kilometers (50 miles) of the proposed repository. The total population within the 80-kilometers grid incorporates Nye County population estimates. The distribution of population in the Final EIS is based upon 2000 estimates incorporating housing counts obtained through windshield surveys and electric utility data. The focus of this information is to establish the relative number of residents in a given direction and distance from the repository.

7.5.6 (6049)
Comment - EIS001898 / 0013
Additional documentation or analysis should be provided in the FEIS to support the characterization of impacts and the description of environmental parameters in some areas of the FEIS.

Section 4.1.6.2.1 (Environmental Consequences of Repository Construction, Operation and Monitoring, and Closure-Impacts to Employment), page 4-41 states "[i]f the present economic growth continued in the region of influence, it could absorb declines in the repository workforce." To assess the adequacy of this statement, the assumptions used to generate the Regional Economic Models, Inc. (REMI) (Treyz et al., 1992) baseline results should be provided. The conclusion appears to require the assumption that the skills of displaced workers are compatible with the employment growth and needs of other sectors.

Reference:

Treyz, G.I., D.S. Rickman, and G. Shao. The REMI economic-demographic forecasting and simulation model. *International Regional Science Review* 14(3): 221-253. 1992.

Response
The Final EIS presents the baseline information for economic measures to 2035. The intent of the cited statement in Section 4.1.6.2.1 is that there would not be a significant decline in the economy due to the closure of the repository. It does not indicate that individual workers might not be absorbed into the local economy fully using their "repository skills." This would be no different than the closure of any workplace, such as a manufacturing facility, where displaced employees might have to change occupations or move, although the impacts to the local economy might be small.

7.5.6 (6120)
Comment - EIS001654 / 0046
Page 3-73. Socioeconomic Analysis Needs Revision.

NARUC ES-11 gave our opinion that the socioeconomic analysis is flawed by choosing an overlarge region of influence that includes metropolitan Las Vegas. We think a segmented or two-tier approach might be more appropriate:

Primary Impact: Portions of Nye County and other areas with adjoining boundaries to the repository using some criterion like a 25 mile zone

Secondary Impact: Balance of Nye County and other areas (including Clark County/Las Vegas) with socioeconomic resources related to or affected by the repository

Nye County is relatively fast growing. We understand Nye County residents have complained that county population has grown far greater than the 26,000 level shown in the DEIS. More current data should be included in the FEIS and used for refined localized socioeconomic analysis.

Response
DOE believes its approach to socioeconomic analysis is appropriate. The comment's suggestion of using two tiers with the first tier of approximately 40 kilometers (25 miles) would include only the unincorporated areas of Amargosa Valley and Beatty. This approach would ignore the fact that the economic driver for southern Nevada is the metropolitan area of Clark County. The analysis assumed that construction and operation of the repository would rely heavily on the resources available only in the greater Las Vegas area. Yucca Mountain Project workers currently live primarily in Clark County. DOE assumes that workers needed to construct and operate a repository at Yucca Mountain would also live primarily in Clark County. Of those who would live in Nye County (which is estimated to be approximately 20 percent of the employees at the Yucca Mountain site), the most common residence would likely be Pahrump, based on current trends. Pahrump is 64 to 80 kilometers (40 to 50 miles) from the Yucca Mountain site.

The Final EIS incorporates Nevada population data developed by and received from county and state officials.

The REMI Economic and Demographic Forecasting System (EDFS) 53-sector computer model incorporates population estimates from recent years (1998 and 1999) provided by officials from Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the Rest of Nevada, the REMI model uses State Demographer estimates for the period. DOE compared these locally derived estimates to the 2000 data provided by the Bureau of the Census.

The Final EIS baseline uses REMI model projections of population totals for each county until 2035. DOE's Clark County projections correspond to those used by the University of Nevada, Las Vegas (DIRS 136698-Riddel and Schwer 1999), which also uses the REMI EDFS 53-sector model. Inputs to the Nye County projections for the Final EIS are based on data identified in Nye County documents (DIRS 150996-Williams 2000; DIRS 148140-PIC 1998). The Nye County projections provided during the comment response period are based in part on a REMI 14-sector model. Lincoln County and the Rest of Nevada projections through 2018 by the Nevada State Demographer's Office (DIRS 155350-State of Nevada 1999 [Nevada Statistical Abstract]) were used as inputs to population projections for these areas. The county projections and Nye County source documents are used to project population distribution within the 80-kilometer (50-mile) radiological monitoring grid. California Department of Finance projections (DIRS 150294-State of California 1998) for Inyo County, California, is used as the basis for projecting population distributions for Inyo County sections of the radiological monitoring grid.

To update the health and safety analyses with transportation in Nevada, DOE used the baseline population for each county in the region of influence and forecast to 2035 to scale impacts from results based on the 1990 Census. For example, if a county's estimated population would double from 1990 to 2035, DOE assumed that the population along the associated rail corridor also would double, and doubled the radiological impacts accordingly. In certain locales, however, such as around the planned Las Vegas Beltway, DOE used local sources of population information to better reflect population growth trends (in this instance, information from a report prepared for the City of North Las Vegas).

For other Nevada counties, Nevada State Demographer projections (DIRS 155350-State of Nevada 1999) were used as the basis for population projections used in analyses of accidents near transportation corridors and for health effects modeling. Estimates of historic populations of towns and cities in Nevada were obtained from the Nevada State Demographer's Office or from county documents, as appropriate.

7.5.6 (6471)
Comment - EIS001632 / 0030
Page 3-79, Section 3.1.8: The assessments of impacts to the local populations appropriately focus on the current demographics of the area. However, there should also be some consideration given to short-term (approximately 20 years) projections of population and land use, particularly in the area directly south of the repository where potential receptors are located. While the National Academy of Science (NAS) recommends against long term (thousands of years) projections of population characteristics, the changing demographics in the greater region around the site argue for considering a reasonable compromise between long term projections and a static situation, such as extending local planning projections for a decade or two. For example, projections of growth at the 20-kilometer location indicate modest population increases.

Response
DOE revised its socioeconomic baseline projections and estimated impacts for the Final EIS incorporating population data available from the State of Nevada and local communities. The revisions include an estimated baseline projection to 2035 for the socioeconomic parameters considered in the EIS. In the Final EIS, the estimated population distribution within 80-kilometers (50-miles) of the repository is also based on projections to 2035 utilizing information available from State and local sources. The allocation of individuals to a particular sector within the 80-kilometer area was based upon surveys conducted in 2000. Figure 3-25 of the EIS provides the population distribution for 2035.

7.5.6 (6646)
Comment - EIS001878 / 0035
The socio-economic descriptions for the environment that would be affected by rail corridors in Nevada are equally inadequate. The DEIS does not contain a complete or accurate description of baseline socioeconomic information for the affected counties. Although more recent population data are available from Nevada's State Demographer

(Exhibit E), the DEIS uses out-of-date population data. Furthermore, the socio-economic description of Eureka County discloses only: the average unemployment rate, per capita income, population, and population density for a single year, projected population for the year 2000, and the total and occupied numbers of housing units. (pp. 3-114, -115) The DEIS should discuss Eureka County's demographic data, economic drivers and trends, local fiscal conditions, cost of living, work force issues, and economic development plans. An example of a more adequate socio-economic description can be found in the South Pipeline Project Draft Environmental Impact Statement (U.S. Department of the Interior, Bureau of Land Management, August 1999), at pp. 4-181 to 4-211.

Since the DOE says that the DEIS is adequate to support a decision on transportation modes, routes, and corridors, the concerns of Eureka County are especially great. The DEIS implies that the affected environment is sparsely populated, lightly used, and not important. To the contrary, the resource-based economy of Eureka County and other Nevada counties depends almost entirely on the land and its mineral and biological resources.

The DEIS should cite the underlying data source for the population statistics in Table 3-22 (p. 3-73) and compare the statistics to current population estimates available from Nevada's state demographer.

Response
Table 3-22 in the EIS lists information from the Nevada State Demographer's Office, rounded to two significant figures. The Final EIS incorporates Nevada population data developed by and received from county and State officials. These are discussed in the following paragraphs.

The REMI Economic and Demographic Forecasting System 53-sector computer model incorporated population estimates from recent years provided by Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the Rest of Nevada, the REMI model used State Demographer estimates for the period. DOE compared these basically derived estimates to the 2000 data provided by the Bureau of the Census. Eureka County is part of the Rest of Nevada.

DOE has chosen economic and demographic measures that are representative of the economy and potential impacts from the repository. These include population, employment, Gross Regional Product, and state and local government spending. The National Environmental Policy Act requires an analysis detailed enough to understand the effects of the action. It is not necessary to consider each impact, no matter how inconsequential. The Final EIS baseline uses REMI model projections of population totals and other economic measures for each county and the Rest of Nevada until 2035.

To update the health and safety analyses with transportation in Nevada, DOE used the baseline population for each county in the region of influence and forecast to 2035 to scale impacts from results based on the 1990 census. For example, if a county's estimated population would double from 1990 to 2035, DOE assumed that the population along the associated rail corridor also would double, and doubled the radiological impacts accordingly. In certain locales, however, such as around the planned Las Vegas Beltway, DOE used local sources of population information to better reflect population growth trends (in this instance, information from a report prepared for the City of North Las Vegas).

As discussed in Section 5.2.4.1 of the Draft EIS, DOE accepts the position of the National Academy of Sciences that it is not possible to make accurate predictions of future human behavior. As stated in Section 5.2.4.1 of the Draft EIS, DOE used a default position of today's conditions. For the Final EIS, DOE has projected baseline population and other economic measures to 2035. Projections for periods farther in the future would be substantially less credible.

7.5.6 (6662)
Comment - EIS001878 / 0040
Impacts on land use not adequately addressed. Largely due to arbitrary limits on the region of influence, the DEIS does not adequately address land use impacts within Clark, Nye, and Lincoln Counties. (pp. 4-4, -5) The DEIS does not discuss whether the repository would accelerate land development by stimulating the economy or, alternatively, reduce the rate of development due to perceived risk and stigmatization.

Response
It is not clear what the commenter means by "arbitrary limits on the region of influence." DOE based the region of influence on historic residential patterns of Yucca Mountain Project and Nevada Test Site workers and included land in each alternative transportation corridor. (See Chapter 6 of the EIS.) DOE does not expect a "boom or bust" situation because sustained marginal increases in population would occur over a long period, and because of the repository's relative proximity to a large metropolitan area. In general, if population growth associated with a Proposed Action is less than 5 percent of the study area's total population, potential impacts are considered to be small and notable land use changes because of changes in population are unlikely.

7.5.6 (6664)
Comment - EIS001878 / 0042
DEIS assumes public service impacts evenly distributed. The analysis of public service impacts of the repository (p. 4-44) is unsupported. The DEIS assumes that population growth and, therefore, demands for public services would be evenly distributed throughout Clark County and southern Nye County. Realistically, impacts will be concentrated in those areas within close commuting distance of Yucca Mountain, creating larger public service impacts with their associated costs.

Response
The DOE analysis concluded that potential impacts to the public services of Nye and Clark Counties would not be discernible because increases in employment and population associated with the Yucca Mountain Project Yucca Mountain Project would occur over a long period. DOE agrees that incremental population increases in Nye County would be more evident than it would for Clark County. However, the Department has no basis to conclude that commuting patterns would vary from what has historically occurred for the Yucca Mountain Project and Nevada Test Site workforces.

7.5.6 (6670)
Comment - EIS001878 / 0045
The information on land exchanges in Clark County (p. 4-43) is incorrect, and it fails to consider that land supply is only one of the factors affecting housing conditions.

Response
While the commenter did not elaborate on exactly what he considers to be incorrect about the information on page 4-43 of the Draft EIS, DOE does agree that land supply is a factor that could affect housing. Land or housing availability, however, is a direct indicator of whether an action could affect existing housing stock. Housing impacts are likely to be small for workforces located in medium or high population areas and in areas where vacancy rates are high and land and housing stock is available. DOE has clarified this in Section 4.1.6.2.4 of the Final EIS.

7.5.6 (7143)
Comment - EIS001337 / 0040
Lincoln County and the City of Caliente recommended that the DEIS include a comprehensive assessment of desirable and undesirable economic and fiscal consequences of repository system activities in the County and City. The County and City noted in their EIS scoping comments that a credible assessment of socioeconomic impacts would only be possible by DOE if the agency had at its disposal an accurate understanding of existing socioeconomic conditions within the County and among its communities. The County and City further suggested that such a baseline assessment of "without repository system" socioeconomic conditions should include the following factors: economy, demographics, social conditions, Native Americans, public perceptions and attitudes, community services, community infrastructure, local government finances, government structure, local politics, telecommunications, emergency management, transportation infrastructure, land use, traffic, military operations, and public health. The County and City noted that the DEIS must present a comprehensive appraisal of current and without repository future socioeconomic conditions. According to the County and City, this baseline of information could then be used to compare against projected with repository conditions to extract resultant system impacts upon the County and its communities. Section 3, Affected Environment of the DEIS provides only a limited description of socioeconomic conditions in Lincoln County and the City of Caliente. The only desegregated description of socioeconomic conditions for Caliente concerns population. The DEIS provides no baseline description for many potentially impacted parameters including: age distribution; projected population growth without repository activities through at least 2035; baseline projected employment and incomes by economic sector through at least

2035; baseline projections of school enrollments by age distribution through at least 2035; baseline projections of supply and demand for public infrastructure (including water, wastewater, solid waste, electricity, recreation facilities, educational facilities, emergency first response equipment and facilities; emergency medical facilities and equipment) through at least 2035; baseline social conditions including crime, substance abuse, and demand for social programs; community cohesion; baseline projections of local government revenues and expenditures at least through 2035; baseline projections of housing availability, condition and cost through at least 2035; and baseline projections of land use through at least 2035 among other possible parameters. All of these descriptions of baseline and without repository projections of conditions should be at the Lincoln County and at the community level (i.e. Caliente, Alamo, Panaca, Pioche, Hiko, Rachel). For example, baseline projections of wastewater treatment facility demand and capacity is key in Caliente as the proposed location of the intermodal facility is the current City wastewater treatment facility which would require that the City's existing wastewater treatment facilities be relocated. In addition, a recent DOE study has identified U.S. 93 (which is immediately adjacent to Pioche) as a potential corridor for legal weight truck shipments of radioactive waste.[6] The social tapestries, which characterize each community in Lincoln County, vary greatly. Religious and occupational variation contribute greatly to community social delineation. Age clusters define important social characteristics within each community. Previous studies by the State of Nevada have detailed differences in social conditions among Lincoln County communities.[7,8] Growth within Lincoln County's small communities may induce significant changes in social conditions. Ethnographic research sponsored by Lincoln County and the City of Caliente have illustrated the unique cultural dimension which characterizes the County and City. The County and City continue to believe that the EIS must a thorough description of social indicators for Lincoln County communities. Such information is not contained within the DEIS.

[6] TRW Environmental Safety Systems, Inc., Nevada Potential Repository Preliminary Transportation Strategy Study 1 Prepared for U.S. Department of Energy, Office of Civilian Radioactive Waste Management, April 1995.

[7] Krannich, R. and R. Little, Baseline Community Social Profiles for Communities in Nye, Esmeralda, Lincoln and Clark Counties (3 volume), prepared for the State of Nevada, Nuclear Waste Projects Office, 1987. See also, Krannich, R. and R. Little, Ethnographic Summary Report: Eastern Lincoln County, prepared for the State of Nevada, Nuclear Waste Projects Office, 1988. See also, Krannich, R. and R. Little, Ethnographic Summary Report: Pahranagat Valley, prepared for the State of Nevada, Nuclear Waste Projects Office, 1988. See also, Krannich, R. and R. Little, 1988 Rural Community Surveys: updated Background Report, prepared for the State of Nevada, Nuclear Waste Projects Office, 1989. See also, Krannich, R. and R. Little, Analysis of Key Sociocultural Relationships in Seven Southern Nevada Rural Communities, prepared for the State of Nevada, Nuclear Waste Projects Office, 1989.

[8] McCracken, B. Lincoln County Oral History Series oral histories of various County residents prepared for the Lincoln County Nuclear Waste Project Office, 1990 through 1993.

Response

The Final EIS presents a baseline of economic measures, chosen as representative of the economy, to 2035. The measures were projected through the use of the REMI Economic and Demographic Forecasting System 53-sector computer model, and incorporated population estimates from recent years (1998 and 1999). For Lincoln County the REMI model used State Demographer estimates for the period. DOE compared these locally State-derived estimates to the 2000 data provided by the Bureau of the Census. The model projections directly reflect economic and population data developed by and received from State officials. Impacts were measured against this baseline by identifying the changes in the economy as a result of implementation of the alternatives. Section 3.1.7 of the Final EIS addresses the projected baseline conditions through 2035 for Lincoln County. Sections 6.3.2 and 6.3.3 provide an estimate of the change in population and other economic measures for each relevant implementing alternative. The transportation analysis in the Final EIS includes a sensitivity analysis that assigns all potential impacts to Caliente. The analysis conservatively estimates the potential transportation actions on a community level for what could be the most effected community in the State of Nevada.

In the Final EIS, DOE has expanded the socioeconomic discussion in Chapter 3 to provide a clarified basis for understanding the magnitude of potential impacts described in Chapters 4 and 6. This discussion includes a projection of baseline parameters through 2035 based on the most recently available information and assumptions.

The Final EIS provides a quantified estimate, to the extent possible, of potential school enrollment and changes in law enforcement and public service personnel requirements caused by the Proposed Action.

7.5.6 (7145)
Comment - EIS001337 / 0042
During scoping of the EIS, Lincoln County and the City of Caliente made clear the difficulty that small rural counties and communities have in developing and maintaining public services and facilities. Any change in population, related demands for public services and facilities and induced changes in local revenues and expenditures can pose a significant hardship on the area and its residents. The County and City urged the DOE to include in the DEIS the repository EIS and assessment of existing and future "without repository" community service and infrastructure characteristics within Lincoln County and among its various communities. The County and City noted that when included in the affected environment section of the EIS, this information will be useful for comparison with "with repository" service and facility demands to determine net impacts. The DEIS does not provide a sufficient assessment of existing and without repository future community service and facility needs within Lincoln County and the City of Caliente. As a consequence, subsequent impact analyses are wholly inadequate as a means to discern how the repository system (including transportation) may effect the County and City.

Response
The Final EIS presents a baseline of economic measures, chosen as representative of the economy, to 2035. DOE projected the measures through the use of the REMI Economic and Demographic Forecasting System 53-sector computer model, which incorporates population estimates from recent years (1998 and 1999) provided by Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the Rest of Nevada, the REMI model used State Demographer estimates for the period. The model projections directly reflect economic and population data developed by and received from county and state officials. The model measured impacts against this baseline by identifying changes in the economy resulting from implementation of the alternatives.

In addition, DOE has expanded its socioeconomic discussions in Chapter 3 of the EIS to provide a clarified basis for understanding the magnitude of potential impacts described in Chapters 4 and 6. These discussions include a projection of baseline parameters through 2035 based on the most recently available information and assumptions. The Final EIS provides a quantified estimate, to the extent possible, of school enrollment and changes in law enforcement and public service personnel requirements caused by the Proposed Action.

7.5.6 (7151)
Comment - EIS001337 / 0048
Lincoln County and the City of Caliente encouraged DOE to consider population growth resulting from location of repository system support industries in the County and demands for public services and infrastructure by dependents of DOE or contractor employees within the County and City. The DEIS does not consider the potential nor attempt to quantify population growth resulting from location of repository support industries in the County or related demands for public services and facilities.

Response
Section 3.1.7 of the EIS addresses projected baseline conditions for Lincoln County through 2035. Sections 6.3.2 and 6.3.3 of the EIS discuss quantification of changes in population and other economic measures for each relevant implementing alternative. The transportation analysis included a sensitivity analysis that assigned potential impacts to Caliente. This analysis showed the conservative impacts of transportation actions on a community level for what could be the most affected community in Nevada.

7.5.6 (7154)
Comment - EIS001337 / 0050
In comments to the scope of the EIS, Lincoln County and the City of Caliente substantiated the propensity for Clark County and the metropolitan Las Vegas area to garner a disequitable share of economic benefits associated with activities at the Nevada Test Site. The County and City pointed out that unlike many other projects, the construction and operation of the repository system is characterized by clearly discernable risks and benefits. The County and City further noted that unlike many other industrial activities, the spatial and temporal distribution of these risks and benefits has the potential to be disequitable between places and periods of time. The County and City concluded

that the distribution of risks and benefits associated with DOE activities in Nevada during the past 30 years has not been fair.

In their comments, Lincoln County and the City of Caliente worried that development and operation of the repository system within Nevada has the potential for extending and perhaps exacerbating this disequitable distribution of risks and benefits. They suggested examples of practices which DOE might adopt which can widen the risk/benefit gap including: use of union workers, most of whom reside in urban areas, provision of subsidized bussing of repository workers electing to reside in Clark County, and purchase of goods and services from vendors located in urban areas, among other possibilities. Lincoln County and the City of Caliente suggested that the repository EIS should evaluate the distributional equity implications of various options for system development and operation. The County and City recommended that the evaluation should consider the cumulative aspects of risks and benefits associated with other DOE activities likely to occur within Nevada (i.e. LLRW management). They concluded that this information should be used to inform identification and analysis of alternatives for mitigating the disequitable distribution of repository system risks and benefits. The DEIS does not consider the potential for disequitable distribution of repository system economic benefits, fiscal impacts and risk to public health and the environment among Nevada's geographic areas. As a consequence no measures to mitigate disequitable distribution of benefits and costs are identified or presented within the DEIS.

Response
The EIS does not directly address the "distributional equity implications of various options for system development and operation." The EIS does include an extensive discussion of cumulative impacts in Chapter 8, which states that "An evaluation of cumulative impacts is necessary to an understanding of the environmental implications of implementing the Proposed Action and is essential to the development of appropriate mitigation measures and the monitoring of their effectiveness." In addition, consistent with the National Environmental Policy Act, the discussion of potential mitigation measures in Chapter 9 of the EIS is focused on the "...adverse impacts to the environment that could occur if the Department implemented the Proposed Action..." While DOE has evaluated cumulative impacts and considered them in the context of the overall assessment of environmental impacts that could result from the Proposed Action, the discussion of mitigation measures focused appropriately is on the potential impacts of the Proposed Action rather than mitigation of cumulative effects.

Apart from the considerations required under the National Environmental Policy Act, Section 116(c)(2)(A)(i) of the NWPA states that "the Secretary shall provide financial and technical assistance to (State of Nevada or affected unit of local government)…to mitigate the impact on such (State of Nevada or affected unit of local government) of the development of (a) repository and the characterization of (the Yucca Mountain) site." Such assistance can be given to mitigate likely "economic, social, public health and safety, and environmental impacts." Within that broad framework, neither Section 116 nor any other provision of the NWPA limits the impacts that are subject to assistance under Section 116 to the environmental impacts considered in this EIS.

Under the NWPA, the Section 116 impact assistance review process and the EIS process are distinct from one another, and the implementation of one is not dependent on the implementation of the other. Thus, the provision of assistance under Section 116 would not necessarily be limited either by the impacts identified in this EIS or by its findings on such impacts. Any decision to provide assistance under Section 116 would be based on an evaluation of a report submitted by an affected unit of local government or the State of Nevada pursuant to Section 116 to document likely economic, social, public health and safety, and environmental impacts. DOE would enter into discussions with the State of Nevada and affected units of local government and consider appropriate support and mitigation measures.

Examination of the practices suggested by the commenter (for example, use of union workers, provision of subsidized bussing of repository workers, and procurement practices for goods and services) is beyond the scope of the EIS or their consideration is premature.

7.5.6 (7155)
Comment - EIS001337 / 0051
In comments to the scope of the EIS, Lincoln County and the City of Caliente concluded that DOE must consider the positive implications of DOE and contractor spending in Lincoln County. In addition, the County and City felt

that the EIS must include a thorough analysis of the fiscal consequences of repository system development and operation upon Lincoln County, City of Caliente, and the Lincoln County School District.

Response
Historically, very few workers associated with DOE operations in Nevada have resided in Lincoln County. In the Draft EIS, DOE estimated that no operational workers and only five construction workers on the Yucca Mountain Repository project would live in Lincoln County. Either rail or heavy-haul truck traffic could traverse Lincoln County. The largest potential increase in county population would be associated with operation of the Caliente/Chalk Mountain heavy-haul truck corridor. About 241 new residents would be likely during the peak year. Assuming approximately 32 of these individuals would be of school age, the increase in school enrollment would be about 3 percent based on current enrollment estimates. Incremental increases in the Gross Regional Product for Lincoln County would be extremely small.

7.5.6 (7240)
Comment - EIS001337 / 0111
Page 6-57 Socioeconomic Section - In the discussion of the socioeconomic impacts associated with construction of the branch line in the Caliente corridor, the Draft EIS identifies that the annual average number of construction workers to be 500 to 560 and that there would be 5 construction camps. It would seem that some of the camps will be in the vicinity of the rural communities in Nevada and could have a significant economic impact on the community, in terms of setting up the camps, during construction and when the construction work is, completed. We feel that this impact needs to be addressed in the socioeconomic section and how these impacts could be mitigated needs to be included. Some of the measures taken would be to provide temporary living facilities and classrooms, if many of the workers plan to stay in the community for the construction period and have school age children.

Response
The EIS presents information on the counties in the designated region of influence (Clark, Nye, and Lincoln) and on the Rest of Nevada, which comprises the 14 remaining counties. The socioeconomic simulation model that DOE used to estimate potential impacts indicated that the Rest of Nevada would experience direct economic effects from construction worker spending for food and lodging. The economic simulations assumed that DOE would contract construction camp development and water drilling to firms in the counties in which the camps would be located. They also assumed that all railroad construction workers would commute weekly from Clark County to camps outside Clark County and eat in local restaurants 5 days a week, 50 weeks a year.

The simulations accounted for workforce expenditures through the Eating and Drinking Places Sector and the Construction Sector of the Standard Industrial Code. No impacts to the Rest of Nevada were identified by the simulation.

The transportation analysis in the Final EIS includes a sensitivity assessment that assigns potential impacts to Caliente. This assessment showed conservative impacts of transportation on a community level for what could be the most affected community in Nevada.

With regard to mitigation actions, DOE would conduct discussions with potentially affected units of local government and consider appropriate support and mitigation measures.

7.5.6 (7534)
Comment - EIS001912 / 0057
Pg. 3-114 Section 3.2.2.1.6. Those areas generally have low unemployment.

Response
The information presented in Section 3.2.2.1.6 of the Draft EIS was reevaluated to ensure that the Final EIS accurately portrayed unemployment levels in the referenced areas.

7.5.6 (7875)
Comment - EIS001653 / 0042
The DEIS needs to consider future water demands for diary cattle in the Amargosa Valley. Milking cows require about 150 gallons per day (consumptive and non-consumptive use). Also there appears to be little information about livestock water consumption (10 gallons per day per milking cow) and the distribution of milk product produced in the Amargosa Valley. With the increasing populations of the southwest, it is possible for more diaries to move to the Amargosa area.

Response
DOE has revised Chapter 8.2.3.2.2 of the EIS to include a more detailed discussion of groundwater use in the area and potential cumulative impacts of the various activities in the region that require the use of groundwater. In addition, DOE has updated the EIS to include the new or expanded information where necessary. Groundwater use includes use by livestock. DOE has an active program that surveys and identifies the use of farmland in Amargosa Valley and other areas within 80 kilometers (50 miles) of the proposed repository. This includes the Ponderosa Dairy and other farms in the Amargosa Valley, although the EIS does not name them specifically.

7.5.6 (7910)
Comment - EIS001653 / 0053
Pg. 3-114 Section 3.2.2.1.6 These areas [Eureka, Esmeralda, and Lander Counties] generally have low unemployment.

Response
The Final EIS contains up-to-date unemployment rates (See Section 3.2.2.1.6 of the Final EIS). The unemployment rates in Eureka, Esmeralda, and Lander Counties were 2.6. 10.0, and 7.7 percent, respectively, in 2000.

7.5.6 (7984)
Comment - EIS001577 / 0004
Section 7.3.2.7 claims that the employment of personnel involved with construction and maintenance of 77 facilities is the only contributing factor in socioeconomic impacts due to on site storage. I would comment that the potential of collective responsibility for the safe guarding of these wastes for the time period considered would allow the creation of much greater socioeconomic impact. Participation in the activity of oversight, construction and maintenance of the storage facilities beyond the previously mentioned 100 year planned obsolescence. The possibility of tourism and pilgrimages and educational and interpretational opportunities to understand and contemplate the profoundly deep social and economic commitment that human ancestors made to nuclear technology and the ongoing efforts of current generations to keep its waste products from contaminating the planet, could have enormous social, economic and political impacts, which are not even alluded to in the DEIS.

Response
As noted by the commenter, DOE estimated the workforce impacts associated with the No Action Alternative. This estimate included construction, oversight, and maintenance activities. On the other hand, DOE cannot speculate on the possible role of generator sites as tourism and educational destinations. Commercial utilities, as nuclear plant operators under Nuclear Regulatory Commission regulations, determine the scope of public outreach and interpretative programs provided at their nuclear facilities. DOE does not believe that this level of activity provides discriminating information for the decisionmakers.

7.5.6 (8364)
Comment - EIS001873 / 0048
P. 4-60. Accident impacts would involve more than radiation exposure to humans. Socioeconomic impacts of accidents are one example of other impacts that must be included.

Response
Risks to health and safety would be small because the risks of releases of radioactive materials in accidents would be small. Because the risks of releasing radioactive materials in transportation accidents would be small, the risk of detrimental environmental or economic consequences would also be small, although risks would be different for each location and community along the routes used. For example, the National Marine Fisheries Service concluded

that while there would be risk to marine fisheries from accidents in transporting spent nuclear fuel and high-level radioactive waste from 77 generator sites to Yucca Mountain, this risk would be so small that it can be discounted. Economic consequences of releases of radioactive materials in transportation accidents would be compensated under provisions of the Price-Anderson Act (see Section M.8 of the EIS). In response to public comments, Appendix J now contains a review of analyses of potential environmental and economic impacts from releases of radioactive materials.

7.5.6 (8621)
Comment - EIS001256 / 0014
Population assumptions and radiation dose limits are based on additional assumptions that lack appropriate conservatism to protect all individuals either today or in the future. Our original comments pointed out weaknesses in the population data for Clark County, Nevada. In general, the assumptions for the population figures and the dose limits are not stringent and they underestimate risk and exposure.

Response
Thank you for your comments. DOE believes its assessment of dose to both individuals and the population, as a whole is conservative. Regarding population estimates, however, the Department has revised the population data for the Final EIS to incorporate population estimates and projections from Nye County, the Nevada State Demographer's Office, and Clark County and University of Nevada, Las Vegas information. DOE compared these locally derived estimates to the 2000 data provided by the Bureau of the Census.

7.5.6 (8856)
Comment - EIS000869 / 0025
S.5.1 addresses the no-action alternative and the resultant loss of approximately 4,700 jobs. Those jobs would be lost at the end of the construction and storage period and would only be terminated at a sooner period with the no-action alternative.
Response
The 4,700 jobs that could be lost under the No-Action Alternative include indirect jobs that would have been created in the region of influence. Approximately 3,200 project-related jobs would be lost after a 1-year decommissioning and reclamation period. Section 7.1.6 of the EIS contains additional information.

7.5.6 (9202)
Comment - EIS002111 / 0003
When you have risk assessment, you have to talk about environmental impact, economical impact. I don't know what would be the economical impact and the consequences of Madam Butterfly. Are we going to have more trucker or less customer? It was not addressed in the EIS.

Response
DOE analyzed the socioeconomic and employment impact of the repository and transportation at the county level and determined there would be small increases to population in the region of influence. DOE did not attempt to analyze the impacts or a particular business establishment.

7.5.6 (9206)
Comment - EIS002140 / 0004
People keep on talking about jobs. Every time Steve Wynn opens a new hotel, he talks about jobs. Most of them are -- you know, most of them are making beds and so forth. But that's fine. I'm glad those people have jobs and it's great. The jobs out at Yucca Mountain pay at least 1,000 a week.

Response
DOE and its contractors pay competitive wages for the required jobs and associated skill levels.

7.5.6 (9339)
Comment - EIS001888 / 0055
DEIS Statement (p. 9-5) 9.2.2.2 - The DEIS asserts that the Yucca Mountain vicinity is isolated from concentrations of human population and human activity and is likely to remain so.

This statement is not supportable given the rate of growth in the Amargosa Valley area and the rapidly expanding growth of northern Clark County. Expansion in the Amargosa Valley (and indeed southern Nevada) would most likely be limited by the availability of ground water. Therefore, any reduction in the water available for farming and/or other development is an important impact to that area. Considering the hydrologic basin that receives water from the Yucca Mountain area as "sparsely populated" may be true today, but considering the rapid growth in this area this statement cannot "hold water" for the period of repository construction and operation. NEPA Regulation: Sec. 1502.16 Environmental consequences.

Response
The EIS incorporates Nevada population data developed by and received from county and State officials. DOE used this information in its determination of potential environmental impacts on these revised estimates. The following paragraphs describe the EIS methodology.

The REMI Economic and Demographic Forecasting System (EDFS) 53-sector computer model incorporated population estimates from recent years provided by Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the Rest of Nevada, the REMI model used State Demographer estimates for the period. DOE compared these locally derived estimates to the 2000 data provided by the Bureau of the Census.

The Final EIS baseline used REMI model projections of population totals for each county until 2035. The DOE Clark County projections correspond to those used by the University of Nevada, Las Vegas (DIRS 136698-Riddel and Schwer 1999), which also uses the REMI EDFS 53-sector model. DOE based inputs to the Nye County projections for the Final EIS on data identified in County documents (DIRS 150996-Williams 2000; DIRS 148140-PIC 1998). The Nye County projections provided during the Draft EIS public comment period were based in part on a REMI 14-sector model. DOE used Lincoln County and Rest of Nevada projections through 2018 from the State Demographer's Office (DIRS 155350-State of Nevada 1999) as inputs to population projections for those areas. The Department used county projections and Nye County source documents to project population distribution within the 80-kilometer (50-mile) radiological monitoring grid. California Department of Finance projections (DIRS 150294-State of California 1998) were used as the basis for projecting population distributions for Inyo County sections of the grid.

For other Nevada counties, DOE used State Demographer projections (DIRS 155350-State of Nevada 1999) as the basis for population projections in analyses of accidents near transportation corridors and for health effects modeling. Estimates of historic populations of towns and cities in Nevada came from the State Demographer's Office or from county documents, as appropriate.

DOE has revised Chapter 8 to include a more detailed discussion of groundwater use in the area and the potential cumulative impacts of activities in the region that require the use of groundwater. The Department has updated the EIS to include new or expanded information where necessary.

7.5.6 (9364)
Comment - EIS001373 / 0004
A second comment regarding population considerations is as follows. The *Federal Register*/Vol. 64, No. 229/Tuesday, November 30, 1999, page 67056, Section II A, subsection 2, paragraph 4, states: "....Except for population density, the specific content of the qualifying or disqualifying factors was left to DOE's informed discretion...." This describes the guidelines used during the preliminary site screening process associated with Section 112(a) of NWPA that was completed in the mid-1980's. Given the population growth that occurred in southern Nevada since the original site identification, and the projected growth of the area in the immediate future, would the Yucca Mountain site meet the population density guidelines that were employed in the mid-1980's assessment that originally identified the Yucca site?

Response
The economic and demographic projections in the Final EIS directly reflect data developed by and received from county and State officials. Even with the updated population projections and recognition of the population growth that has occurred in southern Nevada during the last 20 years, it is unlikely that the Yucca Mountain site would be disqualified as a result of the population density guidelines.

The 1986 *Environmental Assessment for Yucca Mountain* (DIRS 100136-DOE 1986) evaluated the site against two favorable conditions and two potentially adverse conditions for population density and distribution. The first favorable condition was "a low population density in the general region of the site." The assessment said the site is in a county with a population density of 0.5 person per square mile and that the density in nearby areas "was well below the continental U.S. average." The other favorable condition was "remoteness from highly populated areas" and the assessment noted that the site is 137 kilometers (85 miles) from the nearest highly populated area in the Las Vegas Valley. Although the distance to a highly populated area is somewhat less today, the distance is still great enough to conclude that the site is remote.

Similarly, DOE has concluded that the absence of potentially adverse conditions has not changed. Adverse conditions include high residential, seasonal, or day-time population within the projected site boundaries, and proximity to highly populated areas (defined as areas with at least 1,000 persons per square mile). There was and is no population within the site boundaries except for a relatively small workforce and the nearest highly populated area is still the Las Vegas Valley.

7.5.6 (9498)
Comment - EIS001888 / 0157
[Summary of comments noted by Clark County Nuclear Waste Division staff at various citizens' meetings.]

One person felt that there weren't great risks from the waste coming through and that it would add jobs to the economy. Other citizens responded that the jobs would be technical or high risk and not really be available to the people living here.

Response
DOE's assumption is that repository construction and operations jobs would be filled from the existing workforce and the regional pool of workers. DOE does not anticipate the need to import large numbers of specialized employees. With regard to construction of the transportation corridors, DOE assumed most of the workers would reside in Clark County and commute to temporary work camps. Much of the incremental change in employment in the region of influence over the long term would be from secondary or repository-induced jobs.

7.5.6 (9499)
Comment - EIS001888 / 0158
[Summary of comments noted by Clark County Nuclear Waste Division staff at various citizens' meetings.]

Don't believe that DOE is really looking at the potential impacts to the citizens and economy.

Response
DOE has extensively evaluated potential impacts to the citizens and the economy. In fact, the Final EIS presents a baseline of economic measures chosen as representative of the economy to 2035. These measures were projected through the use of the REMI Economic and Demographic Forecasting System 53-sector computer model, and incorporate population estimates from recent years provided by Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the Rest of Nevada, the REMI model used State Demographer estimates for the period. DOE compared these locally derived estimates to the 2000 data provided by the Bureau of the Census. The model projections directly reflect economic and population data developed by and received from county and State officials. Impacts were measured against this baseline by identifying the changes in the economy as a result of implementation of the alternatives. It is not necessary to consider or identify each impact.

DOE has expanded the socioeconomic discussions in Chapter 3 of the Final EIS to provide a clarified basis for understanding the magnitude of the potential impacts described in Chapters 4 and 6. This discussion includes a projection of baseline parameters through 2035 based on the most recently available information and assumptions. The EIS provides quantified estimates, to the extent possible, of school enrollment and changes in law enforcement and public service personnel requirements caused by the Proposed Action.

7.5.6 (9853)
Comment - EIS001888 / 0418
[Clark County summary of a comment it received from a member of the public.]

One commenter believed that the EIS should consider the extent to which communities near the repository would grow rapidly and the resulting impacts from increased demands on the use of limited private lands for residential, commercial, and industrial development.

Response
The Draft EIS provides an assessment of growth by each county within the region of influence associated with the repository and each transportation alternative. The incremental increase in total population is not expected to result in any discernible increased demands on the use of private lands. Similar to environmental assessments conducted by the Nuclear Regulatory Commission, DOE believes that for action-related population growth of less than 5 percent of the study area's total population, off site land use changes would be small.

In the siting of transportation corridors, DOE has attempted to avoid, to the extent practicable, private lands. At this time definitive information is not available on specific tracts of land that could be required for a given transportation alternative.

7.5.6 (9935)
Comment - EIS001888 / 0464
[Clark County summary of comments it has received from the public.]

37% of Yucca Mountain employees live in 4 zip codes in the most rapidly growing area in Las Vegas. This is accelerating the rate of expansion of needed services.

Response
It is true that many employees live in the rapidly growing areas of Las Vegas and that contributes to requirements for services. However, the number of employees (and their families) who have moved to the Las Vegas area since the beginning of site characterization in 1986 has been a very small component of the overall growth of the area. Many of the employees already were residents of the Las Vegas area when they were hired.

7.5.6 (9941)
Comment - EIS001888 / 0469
[Clark County summary of comments it has received from the public.]

Tourism currently underwrites many of the services provided to DOE employees.

Response
DOE acknowledges that taxes collected by the tourism industry underwrite many of the services provided to residents of Clark County and the State of Nevada. This would be true no matter who the employer was, whether DOE or a small business service provider. DOE does not believe it is appropriate to comment on the State's (and Clark County's) preferred fiscal structure.

7.5.6 (9950)
Comment - EIS001888 / 0476
[Clark County summary of comments it has received from the public.]

Three commenters stated that the EIS should use socioeconomic models that consider local projections and not rely on national or regional projections. The models should consider economic and population growth driven by retirement and "lifestyle" migration, and should operate at a sub-county level. All assumptions used in the analysis should be made explicit and justified by reference to social science theory and/or experience in analogous cases. And, the methods by which impacts are estimated should be specified so that they can be reviewed and validated. Conclusions and findings should account for the applicable data and present the logic for any professional judgments, including specification of probabilities and ranges of uncertainty when appropriate. Conditions for which there are insufficient data or theory to make a finding should be identified, the current level of knowledge should be

explained, and the implications for drawing conclusions should be presented. The EIS should then make recommendations for resolving significant issues that cannot be properly evaluated due to data or theory limitations.

Response
The Final EIS presents a baseline of economic measures chosen as representative of the economy to 2035. The measures, projected through the use of the REMI Economic and Demographic Forecasting System 53-sector computer model, incorporate population estimates provided by Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the rest of Nevada, the REMI model used State Demographer estimates. The model projections directly reflect economic and population data developed by and received from county and State officials. DOE measured impacts against this baseline by identifying the incremental changes in the economy as a result of implementation of the alternatives. For the Final EIS, DOE compared these locally derived population estimates to the 2000 data provided by the U.S. Bureau of Census.

The National Environmental Policy Act requires that an analysis be detailed enough to understand the effects of the action. It is not necessary to analyze in detail each impact, no matter how inconsequential. Further, it is not necessary for the EIS to provide exhaustive information on the nature of the economic demographic projections.

7.5.6 (9954)
Comment - EIS001888 / 0479
[Clark County summary of comments it has received from the public.]

Commenters stated that the EIS analysis of potential socioeconomic impacts should be evaluated against a baseline affected environment. Some commenters viewed the baseline as existing without Yucca Mountain site characterization activities. Commenters provided detailed lists of parameters to be described in the baseline, including: economic (employment and income by SIC sector), demographic, social, and public finance conditions (including growth trends); conditions in the State of Nevada, southern Nevada counties and sub-county jurisdictions, communities, and impact areas (including government structures and finances, military operations, telecommunication capabilities, community services, emergency management, public health, land use, and transportation infrastructure and traffic); economic base in the State of Nevada, southern Nevada counties, and key sub-county communities -- key interregional linkages for each major component of the economic base at each of the above levels; current demographic and social character, public perceptions, and political landscape; local government service systems and expenditures at each of the above levels (including state shared revenues); Nevada's state/local revenue structure, and the revenues generated for public funds at each of the above levels; and community social conditions. One commenter suggested the EIS should attempt to incorporate the trend toward increased per capita local government service costs.

Response
The EIS presents a baseline of economic measures, chosen as representative of the economy, to 2035. DOE used the REMI Economic and Demographic Forecasting System 53-sector computer model to project the measures, and incorporated population estimates from recent years provided by Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the Rest of Nevada, the REMI model used Nevada State Demographer estimates for the period. The projections directly reflect economic and population data developed by and received from county and state officials. The analysis measured impacts against this baseline by identifying the incremental changes in the economy as a result of implementation of the alternatives. For the Final EIS, DOE compared the locally derived population estimates to the 2000 data provided by the Bureau of the Census.

7.5.6 (9992)
Comment - EIS001888 / 0497
[Clark County summary of comments it has received from the public.]

Commenters stated that the EIS analyses of potential socioeconomic impacts should be conducted on specific populations, including Yucca Mountain area populations (unincorporated areas, cities and towns, counties, and Native American Reservations proximity to Yucca Mountain), the State of Nevada, all areas affected by regional and national transportation of waste to the repository, and areas where waste might be stored. Other commenters preferred that the analyses be conducted at the community or neighborhood level, or by rural/suburban/urban areas. Commenters also recommended that the EIS provide a detailed evaluation of direct and indirect impacts on public

services, state and local services, and state governments that occur as a result of the project, whether as fees, taxes, or other payments. The services to be assessed include all state and local government services that contribute to the program, and state and local public services to the direct, indirect, and induced population and households resulting from the program. The estimates of costs for these services should include expenses for all services, facilities, equipment, infrastructure, and staff. Revenues should be calculated for the project and these revenues should be compared to the costs of services. Services by jurisdiction and type of service should be analyzed and the analysis should be allocated to the proper jurisdictions consistent with the state and local fiscal structure. Lastly, commenters called for the EIS to estimate those impacts that are due to intergovernmental conflict, including costs of legal adjudication, law enforcement and criminal justice services, political activities, and restrictions on state/local/federal relations.

Response
The EIS presents a baseline of economic measures chosen as representative of the economy to 2035. DOE projected the measures through the use of the REMI Economic and Demographic Forecasting System 53-sector computer model, and incorporated population estimates from recent years provided by Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the rest of Nevada, the REMI model used State Demographer estimates for the period. DOE compared these locally derived estimates to the 2000 data provided by the Bureau of the Census. In addition, the model projections directly reflect economic and population data developed by and received from county and state officials. Impacts were measured against this baseline by identifying changes in the economy as a result of implementation of the alternatives.

7.5.6 (9995)
Comment - EIS001888 / 0499
[Clark County summary of comments it has received from the public.]

Commenters requested the EIS to present sufficiently detailed descriptions, for each alternative, in terms useful for socioeconomic analysis and comparison between alternatives. The descriptions should include detailed data on: annual expenditures, employment, and procurement; annual waste and material transportation shipments; management policies (busing, housing, per diem, food service, etc.); and any community development programs or intergovernmental agreements for the provision of service to project.

Response
DOE has assessed the potential socioeconomic impacts associated with the Yucca Mountain Repository and each rail and heavy-haul truck alternative. The Department estimated the impacts at the county level for Clark, Lincoln, and Nye Counties, and the rest of the 14 Nevada counties aggregately, using the REMI Economic and Demographic Forecasting System-53 Forecasting and Simulation Model. The model segments age, ethnicity, and gender based on 600 cohorts to predict population, and calculates births, deaths, and aging. Employment and fiscal changes to the economy are derived from interindustry relationships, labor markets, and national/worldwide economic variables. The analyses quantified the potential impacts for employment, population, personal income, Gross Regional Product, and state and local government spending.

Some of the general assumptions used to generate REMI estimates included basing lodging expenses on the standard General Services Administration rate of $50 per day; meal expenses based on the General Services Administration rate of $30 per day; and wages based on the REMI personal consumption expenditures index. Other input variables included number of waste shipments, commuter patterns, fuel cost, and construction cost.

7.5.6 (9996)
Comment - EIS001888 / 0500
[Clark County summary of a comment it received from a member of the public.]

One commenter stated that the EIS should evaluate the feasibility of taxing each shipment of SNF or HLW at the county or state level.

Response
In the NWPA, Congress directed DOE to evaluate the suitability of a repository at Yucca Mountain. Questions pertaining to the potential for local and state governments to tax individual waste shipments are not within the scope

of the Congressional directive. Constitutional issues pertaining to separation of powers and interstate commerce would likely foreclose a possibility of such taxation.

7.5.6 (10115)
Comment - EIS002155 / 0004
We are the fastest growing community, if not the fastest in the nation. Why would we put this a stone's throw away from that kind of population growth? That's crazy.

Response
DOE acknowledges the fast growth rate of Clark County and southern Nevada. The economic and demographic projections in the Final EIS incorporate data developed by county and State officials. Even with the updated population estimates, it is unlikely that the Yucca Mountain site would pose a substantial risk to members of the public.

7.5.6 (10229)
Comment - EIS002115 / 0004
The statistics for the population and growth in Nevada is outdated. The population of places like Las Vegas, Reno, Carson City and Pahrump have significantly increased. With the population increase has come an increase in Nevada's transportation system. Along with its increase has come an increase in accidents all over Nevada.

What precautions are being taken or safe havens being used, updated or built to ensure the safe transportation of the high-level radioactive waste? The EIS should contain this information using current data.

Response
The Final EIS uses Nevada population data that incorporate data developed by and received from county and State officials.

The REMI Economic and Demographic Forecasting System (EDFS) 53-sector computer model incorporates population estimates from recent years (1998 to 1999) provided by officials from Nye and Clark counties for the socioeconomic baseline. For Lincoln County and the Rest of Nevada, the REMI model uses State Demographer estimates for the period. DOE compared these locally derived estimates to the 2000 data provided by the Bureau of the Census.

The Final EIS baseline uses REMI model projections of population totals for each county until 2035. The DOE Clark County projections correspond to those used by the University of Nevada, Las Vegas (DIRS 136698-Riddel and Schwer 1999), which also uses the REMI EDFS 53-sector model. Inputs to the Nye County projections for the Final EIS are based on data identified in Nye County documents (DIRS 150996-Williams 2000; DIRS 148140-PIC 1998). The Nye County projections provided during the comment response period are based in part on a REMI 14-sector model. Lincoln County and rest of Nevada projections through 2018 by the Nevada State Demographer's Office (DIRS 153928-NDA 2000) are used as inputs to population projections for these areas. The county projections and Nye County source documents are used to project population distribution within the 80-kilometer (50-mile) radiological monitoring grid. Projections for Inyo County, California (DIRS 150294-California Department of Finance 1998), are used as the basis for projecting population distributions for Inyo County sections of the radiological monitoring grid.

To update the health and safety analyses with transportation in Nevada, DOE used the baseline population for each county in the region of influence and forecast to 2035 to scale impacts from results based on the 1990 Census. For example, if a county's estimated population would double from 1990 to 2035, DOE assumed that the population along the associated rail corridor also would double, and doubled the radiological impacts accordingly. In certain locales, however, such as around the planned Las Vegas Beltway, DOE used local sources of population information to better reflect population growth trends (in this instance, information from a report prepared for the City of North Las Vegas).

For other Nevada counties, Nevada State Demographer projections (DIRS 155350-State of Nevada 1999) were used as the basis for population projections used in analyses of accidents near transportation corridors and for health

effects modeling. Estimates of historic populations of towns and cities in Nevada were obtained from the Nevada State Demographer's Office or from county documents, as appropriate.

Finally, as discussed in Section 5.2.4.1, DOE accepts the position of the National Academy of Sciences that it is not possible to predict future human behavior accurately. As stated in Section 5.2.4.1 of the Draft EIS, DOE used a default position of today's conditions. For the Final EIS, DOE has projected baseline population and other economic measures to 2035. Projections for periods further in the future would be substantially less credible.

In response to public comments, DOE has included additional information in a new appendix to the EIS (Appendix M) regarding operational protocols that are planned for DOE's transportation operations. These operational protocols include instructions to prospective waste acceptance and transportation services contractors regarding use of safe parking areas in the event that shipments to the repository were delayed in transit. Additional details on safe parking areas would be forthcoming when specific routes and modes of transportation were determined. For additional information see 49 CFR 397.5(d)(3)).

7.5.6 (10239)
Comment - EIS001888 / 0588
We have reviewed the Environmental Impact Draft Study (EIDS) [Draft Environmental Impact Statement (Draft EIS)], and have found many areas have been completely over looked.

There were no studies or surveys done in the following areas:

Economic Effects-

Special Taxing Districts & Special Taxes - that are collected from Auto Rental, Trucking, Airport user fees, just to name a few.

Tax Base - over 50% of our tax base comes from gaming revenues.
Visitor Volume -- the reduction of a world wide visitor volume based on a by country by region or state.

Property Taxes and Property Values

Response
The potential environmental impacts on the socioeconomics of the region are discussed in Section 4.1.6 of the EIS for each of the alternative transportation corridor and routes throughout Chapter 6. The analyses are based on a projection of pertinent parameters through 2035. The analyses were conducted at a county and regional level including estimates of changes to state and local spending. Various industrial sectors were an inherent part of the analysis, including the farming and tourism sectors. Property tax and property values were not specifically analyzed because of the dynamics of the real estate market and the fact that definitive information is not yet available on specific tracts of land that could be affected.

7.5.6 (10433)
Comment - EIS002194 / 0008
The only thing I saw in here that said anything about possible disqualifier is human impacts. Now, how come socioeconomic impact was not counted in the DEIS?

Response
Potential socioeconomic impacts were addressed extensively in the Draft EIS (see Sections 3.1.7 and 4.1.6). Furthermore, the Final EIS presents a baseline of economic measures, chosen as representative of the economy, to 2035. The measures are projected through use of the REMI Economic and Demographic Forecasting System 53-sector computer model, and incorporates population estimates from recent years provided by officials from Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the Rest of Nevada, the REMI model uses State Demographer estimates for the period. DOE compared these locally derived estimates to the 2000 data provided by the U.S. Bureau of the Census. The model projections directly reflect economic and population data developed by and received from county and state officials. Impacts are measured against this baseline by identifying the incremental changes in the economy as a result of implementation of the alternatives.

In addition, in the Final EIS DOE has expanded its socioeconomic discussions in Chapter 3 to provide a clarified basis for understanding the magnitude of potential impacts described in Chapter 4. This discussion includes a projection of baseline parameters through 2035 based on the most recently available information and assumptions. In the Final EIS, DOE provides a quantified estimate, to the extent possible, of school enrollment and changes in law enforcement and public service personnel requirements.

7.5.6 (10698)
Comment - EIS002146 / 0003
They wanted all of the facts and figures and they got them, believe me, and as far as the economy goes, I think a lot of the people fail to realize here the economy that that place is going to have. When that test site starts, if that is anything close to what it's supposed to be, we're talking about 2,800 people that it's probably going to employ. We're not talking about minimum wage jobs. We're talking about jobs of people making a thousand dollars a week plus. That's going to really put some real money into the economy in the state for tax purposes and everything else.

Response
DOE and its contractors pay competitive wages for the required jobs and associated skill levels.

7.5.6 (10699)
Comment - EIS002146 / 0004
A lot of these people don't realize that what it's going to contribute to the infrastructure as far as what's going to be donated by the government to the school districts, to the surrounding counties. We're talking about a lot of money that people aren't addressing here as far as schools, infrastructure, fare roads. What's that going to do? That's going to create jobs for people, also.

Response
Section 116(c) of the NWPA states that "the Secretary shall provide financial and technical assistance to (an affected unit of local government or the State of Nevada)…to mitigate the impact on such (an affected unit of local government or the State of Nevada) of the development of (a) repository and the characterization of (the Yucca Mountain) site." Such assistance can be given to mitigate likely "economic, social, public health and safety, and environmental impacts." Within that broad framework, neither Section 116 nor any other provision of the NWPA limits the impacts that are subject to assistance under Section 116 to the environmental impacts considered in this EIS.

Under the NWPA, the Section 116 impact assistance review process and the EIS process are distinct from one another, and the implementation of one is not dependent on the implementation of the other. Thus, the provision of assistance under Section 116 would not necessarily be limited either by the impacts identified in this EIS or by its findings on such impacts. Any decision to provide assistance under Section 116 would be based on an evaluation of a report submitted by an affected unit of local government or the State of Nevada pursuant to Section 116 to document likely economic, social, public health and safety, and environmental impacts. If the proposed repository was to become operational, DOE would enter into discussions with the State of Nevada and affected units of local government and consider appropriate support and mitigation measures.

After a decision was made regarding the proposed repository and transportation modes and routes, local jurisdictions would be better able to identify the likely economic, social, public health and safety, and environmental impacts that would be the basis for a request for economic assistance, which could include assistance in providing additional medical and emergency response facilities, under Section 116(c) of the Act.

7.5.6 (11014)
Comment - EIS001896 / 0012
Section 3.1.7

There could be direct and indirect impacts on the City of Henderson in terms of employment, housing, schools, and parks from the construction of the Yucca Mountain project.

Response
DOE assessed the potential socioeconomic impacts associated with Yucca Mountain Repository activities on a countywide level for Clark, Lincoln, and Nye Counties. The Department expects that there would be some nominal direct and indirect impacts to the City of Henderson proportional to the historic residential patterns of the Yucca Mountain Project and Nevada Test Site workforces.

7.5.6 (11022)
Comment - EIS001896 / 0019
Section 4.1.6.2.2

The construction and operation of Yucca Mountain facility could impact Clark County with population increase, increased demand for housing, and schools.

Response
Section 4.1.6.2.2 of the Draft EIS indicates that the peak population increase associated with the repository is expected to be about 5,062 people (in 2030). This represents an extremely small component of the overall population growth in Clark County, which is projected to be more than 850,000 persons between 2005 and 2030. Nevertheless, in the Final EIS, DOE has expanded its socioeconomic discussions in Chapter 3 to provide a clarified basis for understanding the magnitude of potential impacts described in Chapter 4. This discussion includes a projection of baseline parameters through 2035 based on the most recently available information and assumptions. In the Final EIS, DOE provides a quantified estimate, to the extent possible, of school enrollment and changes in law enforcement and public service personnel requirements.

7.5.6 (11128)
Comment - EIS000207 / 0002
The nearly 750,000 members of the IBEW [International Brotherhood of Electrical Workers] include many workers at nuclear facilities. Overall, over 70,000 union employees work in long-term, good-paying jobs at the 103 operating nuclear power plants. Without a proper storage facility for their used nuclear fuel, these nuclear plants face the possibility of having to shut down.

If plants start closing down due to a lack of spent fuel storage space, many union jobs will disappear, and consumers, for no compelling reason, lose a real contender for lower-cost electricity in the newly competitive electric supply industry.

In addition to the 70,000 permanent jobs, thousands of additional union employees are hired during each refueling outage at the plants around the country. In order for these jobs to continue, it is obviously necessary for the nuclear plants to continued operating. If even one plant is forced to shut down because of a lack of storage space, hundreds, possibly thousands, of jobs will be irretrievably lost.

Response
The EIS considers the incremental impacts of the Proposed Action and No-Action Alternatives. Section 113(c)(F) of the NWPA requires that if the Yucca Mountain Site would be determined to be unsuitable, the Secretary of Energy shall "report to Congress not later than 6 months after such determination, the Secretary's recommendation for further action to assure the safe, permanent disposal of spent nuclear fuel and high-level radioactive waste."

7.5.6 (11307)
Comment - EIS001814 / 0036
DEIS Page 3-134
Section 3.1.7 contains socioeconomic background information on the three counties (Clark, Lincoln, and Nye) most involved in the heavy-haul routes.

Comment: The section referenced contains very little information on the expected future population of these areas during the period of operations. To accurately predict the impact of heavy-haul operations, future population projections are necessary. These projections are required in order to forecast traffic volumes on the affected highways. Without these projections, the impact of operations on the level-of-service for the affected highways cannot be assessed. In the Las Vegas urban area, the area where growth is expected to occur given the proposed

construction of urban area bypasses should also be projected. Highway improvements are known to effect growth patterns in urban areas. Without projecting the change in growth patterns associated with the urban bypasses, the projected traffic volumes on these roads cannot be predicted.

Response
The Final EIS incorporates Nevada population data developed by and received from county and state officials.

The REMI Economic and Demographic Forecasting System (EDFS) 53-sector computer model incorporates population estimates from recent years provided by officials from Nye and Clark Counties for the socioeconomic baseline. For Lincoln County and the rest of Nevada, the REMI model uses State Demographer estimates for the period. DOE compared these locally derived estimates to the 2000 data provided by the U.S. Bureau of the Census.

The Final EIS baseline uses REMI model projections of population totals for each county until 2035. DOE's Clark County projections correspond to those used by the University of Nevada, Las Vegas (DIRS 136698-Riddel and Schwer 1999), which also uses the REMI EDFS 53-sector model. Inputs to the Nye County projections for the Final EIS are based on data identified in Nye County documents (DIRS 150996-Williams 2000; DIRS 148140-PIC 1998). The Nye County projections provided during the comment response period are based in part on a REMI 14-sector model. Lincoln County and Rest of Nevada projections through 2018 by the Nevada State Demographer's Office (DIRS 155350-State of Nevada 1999) were used as inputs to population projections for these areas. The county projections and Nye County source documents were used to project population distribution within the 80-kilometer (50-mile) radiological monitoring grid.

To update the health and safety analyses with transportation in Nevada, DOE used the baseline population for each county in the region of influence and forecast to 2035 to scale impacts from results based on the 1990 Census. For example, if a county's estimated population would double from 1990 to 2035, DOE assumed that the population along the associated rail corridor also would double, and doubled the radiological impacts accordingly. In certain locales, however, such as around the planned Las Vegas Beltway, DOE used local sources of population information to better reflect population growth trends (in this instance, information from a report prepared for the City of North Las Vegas).

As discussed in the EIS (Section 6.2), legal-weight truck shipments of spent nuclear fuel and high-level radioactive waste to Yucca Mountain would present only a small increase in truck traffic on regional highways and would not affect level of service conditions. DOE expects operations requirements for heavy-haul trucks, if this mode of transportation was used, would be selected to limit impacts to traffic flow on highways. Thus, DOE does not anticipate level-of-service impacts for highways where heavy-haul trucks could be used.

7.5.6 (11523)
Comment - EIS002252 / 0009
The DEIS failed to address the socioeconomic impact to not only Southern Nevada, as the fastest growing region in the country, but every region that the nuclear waste will be traveling through.

Response
DOE recognizes the rapid growth in southern Nevada. Chapter 6 of the EIS contains estimates of potential socioeconomic impacts from the construction and operation of alternative transportation scenarios. The economic and demographic simulations that DOE performed using the REMI EDF-53 Forecasting and Simulation Models derived changes to the economy from interindustry relationships, labor markets, and national and worldwide economic variables.

The analysis considered the entire State of Nevada. DOE structured the information in the EIS into four regions – Clark County, Nye County, Lincoln County, and the Rest of Nevada, which comprises the 14 remaining counties in the State. The Department estimated the potential impact of each alternative on the same economic parameters for each region. DOE believes this analytical structure provides a reasonable representation of impacts.

From the national perspective, DOE did not analyze the potential socioeconomic impacts of transportation because all spent nuclear fuel and high-level radioactive waste shipments would use existing routes. The shipments would

represent a very small fraction of total national highway and railroad traffic (0.008 percent of truck kilometers and 0.007 percent of railcar kilometers).

7.5.6 (12416)
Comment - EIS001888 / 0491
[Clark County summary of comments it has received from the public.]

Commenters believed that the socioeconomic analysis should be conducted at a level which reveals rather than obscures potential impacts, and which supports evaluation at the community level. Key dimensions included: annual estimates of transportation shipments, employment, and procurement effects, analysis at community-specific geographic levels (worksite locations, community ZIP code, place of residence, or procurement destination of payment), and shipments by Nevada transportation route segment; cause and effect links between expenditure, management policy, work activity, and estimated Nevada employment and procurement; cause and effect links between the current and projected inventory, the acceptance schedule, and the characteristics of shipment campaigns; cause and effect links between projected shipments, surface facility capacities, and permanent disposal capacity. One commenter suggested the EIS should discuss socioeconomic impacts in cause and effect terms to allow reviewers to understand and trace the estimation of potential impacts.

Response
The Final EIS presents a baseline of economic measures representative of the economy to 2035. The measures, which were projected through the use of the REMI and Demographic Forecasting System 53-sector computer model, incorporate population estimates provided by Nye and Clark Counties. For Lincoln County and the Rest of Nevada, the model used State Demographer estimates. DOE compared these locally derived estimates to the 2000 data provided by the U.S. Bureau of the Census. The model projections directly reflect economic and population data developed by county and State officials. The model measured impacts against this baseline by identifying incremental changes in the economy as a result of the implementation of different implementing alternatives. Inherent within these analyses are employment levels based on assumptions such as labor required for transportation of spent nuclear fuel and high-level radioactive waste shipments and operation of intermodal transfer facilities.

Much of the information requested by this commenter, such as "analysis at community-specific geographic levels (worksite locations, community ZIP code, place of residence, or procurement destination of payment)," is not available because definitive information on specific transportation routes has not yet been developed. Further identification of the locations of business that could sell products or services to DOE, or the future residential patterns of its employees, would be speculative.

7.5.6 (12423)
Comment - 010375 / 0009
Nye County, Pahrump high rate growth not taken into consideration.

Response
The REMI Economic and Demographic Forecasting System 53-sector computer model incorporates population estimates from recent years (1998 to 1999) provided by officials from Nye County, including the town of Pahrump. DOE compared these locally derived estimates to the 2000 data provided by the U.S. Census Bureau.

The Final EIS baseline uses REMI model projections of population totals for each county until 2035 in the region of influence and the rest of Nevada. Inputs to the Nye County projections for the Final EIS are based on data identified in Nye County documents (DIRS 150996-Williams 2000; DIRS 148140-PIC 1998). The Nye County projections provided during the comment response period are based in part on a REMI 14-sector model. The Nye County source documents are used to project population growth rate within the 80-kilometer (50-mile) radiological monitoring grid.

7.5.6 (12588)
Comment - EIS001654 / 0021
Page S-43. Socioeconomic Impact Analysis Flaws

We have heard complaints that the socioeconomic analysis is inaccurate because the census data that was used is not current because of the rapid growth in Clark County and Southern Nevada.

We have a more basic concern that the analysis of socioeconomic impacts examines the wrong region of influence. Elsewhere in the document (Page 3-71) DOE states that the region of influence was defined based on distribution of residences of current DOE employees and contractors who work on the project. Since 79 percent of those employees live in Clark County (metropolitan Las Vegas,) that county is included in the analysis of impacts from the development and operation of the repository. There can be little dispute that current employees have chosen those living patterns, for a variety of reasons, but does it necessarily follow that a future workforce associated with the repository construction and operation would also follow that pattern?

One of the consequences of using the larger region of influence than might normally have been defined for a similar project elsewhere, is that the effects of the project that might be a large proportion of, say, Nye County, with a population of 30,000 people but those same effects would have a much smaller impact as a proportion of Clark County (more than 700,000 people) when analyzed with Nye and Lincoln County.

In simple terms, the socioeconomic impacts of the project are diluted by having such a large region of influence. There may, in reality, be some aspects of the project that may overwhelm the resources of the immediate vicinity of the repository, yet the regional analysis would indicate there would be no problem for the large region. As example, we understand that the emergency health care services in Nye County are limited, as is often the case in rural locations. Yet, if an accident were to occur on or close to the repository site it is little comfort to know that metropolitan Las Vegas-90 miles away-has ample medical treatment capacity. We challenge the statement (Page S-45) that "impacts to ... public services from population changes in the region resulting from repository activities would be small." They may be small in proportion to the large regional study area but the more localized impacts in the area most proximate to Yucca Mountain will be more dramatic and potentially overwhelming in some categories.

We will return to this point with a suggestion for handling future socioeconomic impacts that is less centered on Clark County.

Response
DOE recognizes the rapid growth of population in southern Nevada and has modified the population information in this EIS to approximate the estimates developed by Nye County, the Nevada State Demographer and the University of Nevada Las Vegas, the latter working with Clark County. Table 3-23 of this EIS shows approximately 79 percent of Nevada Test Site and Yucca Mountain Project workers live in Clark County; 19 percent in Nye County; and about 2 percent outside the region of influence.

While DOE agrees the historic commuting patterns of the Yucca Mountain Project and Nevada Test Site employees is no guarantee that future residential distribution would be the same, DOE believes this is a valid assumption for analytical purposes and has no basis for assuming otherwise.

DOE estimated impacts at the county level for the three potentially most affected counties (Clark, Nye, and Lincoln). As a consequence, the Department does not believe the impacts are diluted. For all reported socioeconomic parameters, information is provided for all three counties.

Section 3.1.7.5 of the EIS describes health care services in the region of influence for 2000. The EIS discusses that the residents of southern Nye County rely on clinics or go to hospitals in Las Vegas. DOE makes no judgment on the adequacy of existing medical care in the potentially affected communities. The Department does believe, however, that because the increase in population, based on the assumed residential distribution and migration patterns, would occur steadily over a long period, population increases would not result in a degradation of the level of services historically provided to those communities.

7.5.6 (13079)
Comment - 010230 / 0005
The SDEIS should consider locating required off-site manufacturing plants for drip shields, waste packages, and emplacement pallets in Esmeralda County.

Response
DOE has made no decisions with regard to the procurement or manufacture of waste shipping casks, emplacement pallets, or drip shields. Final determinations would be subject to Federal procurement regulations, total need, timing, manufacturing capabilities, and availability of raw materials. DOE assumes for purposes of analysis that existing vendors in Massachusetts, North Carolina, Ohio, Pennsylvania, and Tennessee would supply waste shipping casks and emplacements pallets. However, DOE would not categorically exclude any location as a possible site for repository support functions.

7.5.6 (13081)
Comment - 010230 / 0007
In Section 3.1.6, "Socioeconomics," the SDEIS does not adequately address negative impacts to local economies if workers are drawn away from small communities to work at the Test Site. The tax base and real estate values in a small mining community such as Goldfield could suffer.

Response
DOE evaluated the potential socioeconomic impacts of its actions in Nevada based on the historic residential and commuting patterns of its employees, over 90 percent of whom reside in and commute from Clark County. While DOE acknowledges the historic commuting patterns of the Yucca Mountain Project and Nevada Test Site employees is no guarantee that future residential distributions would be the same, DOE believes this is a valid assumption for analytical purposes and has no basis for assuming otherwise. DOE does not anticipate that a large number of Goldfield residents, or residents of other smaller communities located relatively long distances from Yucca Mountain and the Nevada Test Site, would relocate in the future to work at DOE facilities because historical information shows they have not done so to date. As a consequence, direct impacts to factors such as the tax base due to the out-migration of residents are not anticipated.

7.5.6 (13173)
Comment - 010243 / 0020
Employment at the [fuel blending] facility is expected to reach 2000 persons. Approximately ninety percent of the 2000 persons expected to be employed at the fuel handling facility will live in Clark County. Based on traditional planning calculations the following impacts on municipal services are likely to be experienced.

$1,972,125 Park Cost
$375,000 Fire Station Costs
$155,000 Police Station Costs
$68,400 Traffic Signal Costs
$12,236,574 Elementary School Cost
$5,760,000 Middle School Cost
$7,860,262 High School Cost
$28,427,361 Total Direct Costs to Clark County

Figure 1 Direct Costs to Governments in Clark County due to Fuel Blending

Response
DOE appreciates the input provided by Clark County with regard to estimates of potential impacts to municipal services. The Department anticipates that about 1,800 workers of the 2,000 workers associated with functions in support of the repository could result in up to a $166-million-per-year increase in Gross Regional Product and a $110-million-per-year increase in real disposable income. As noted by Clark County, a large percentage of the workers are likely to reside in Clark County and Las Vegas. As a consequence, not only would most of the services used by the workers be in Clark County, but most of the positive regional effects would also be centered in the metropolitan area, where the workers would pay property, sales, vehicle, and all other taxes and fees collected by Clark County and the State of Nevada.

In addition to the estimated contribution to the regional economy associated with repository workers, DOE is responsible for Payments-Equal-To-Taxes (PETT) pursuant to Section 116(c)(3)(A) of the NWPA, which requires the Secretary of Energy to "…grant to the State of Nevada and any affected unit of government, an amount each fiscal year equal to the amount such State or affected unit of government, respectively, would receive if authorized to tax site characterization activities…." Clark County has been eligible to receive PETT since the enactment of the amendments Nuclear Waste Policy Amendments Act of 1987 (Public Law 100-203, 101 Statute 1330).

DOE acquires data from the Yucca Mountain Site project organizations that purchase or acquire property for use in Nevada, have employees in Nevada, or use property in Nevada. These organizations include Federal agencies, national laboratories, and private firms. Not all of these organizations have Federal exemption status so they pay the appropriate taxes. The purchases (sales and use tax), employees (business tax), and property (property or possessory use taxes) of the Yucca Mountain Project organizations that exercise a Federal exemption are subject to the PETT Program (DIRS 103412-NLCB 1996).

The actual sales and use taxes, property taxes, and Nevada business taxes paid by Yucca Mountain Project organizations that were not exempted from tax payment obligations for the period from May 1986 through June 2000 have been calculated. These organizations paid sales and use taxes of $2.5 million for purchases made in Clark County; paid property or possessory taxes of about $90,000 in Clark County; and paid the State of Nevada about $810,000 in business taxes (DIRS 156763-YMSCO 2001). The PETT for sales or use taxes from May 1986 through June 2000 was about $4.4 million for purchases in Clark County. For property taxes, it was about $940,000 in Clark County; about $130,000 was paid to the State of Nevada in business taxes.

7.5.7 HUMAN HEALTH AND SAFETY

7.5.7 (66)
Comment - 15 comments summarized
Commenters were both for and against DOE's methods for estimating radiation health impacts from low-level exposure to radiation, methods that are based on the linear no-threshold hypothesis. Several commenters thought use of the linear no-threshold hypothesis was too conservative, noting the extrapolation of observed high dose and effect relationships to low doses, where no effects have been observed, and the possibility of positive effects (radiation hormesis). One commenter noted the opposing "supralinearity" hypothesis, which theorizes higher effects at low doses. Other commenters noted the general acceptance of the linear no-threshold hypothesis and its implication that all radiation exposure carries with it some degree of risk. Some commenters suggested DOE needed to reconsider models used for the dose-health effect relationship.

Response
DOE recognizes there are uncertainties regarding the relationship of radiation dose and health effects at low doses and low dose rates. Scientific advisory groups, including the National Academy of Sciences, National Council on Radiation Protection and Measurements, and the International Commission on Radiological Protection have reviewed the research and population exposure data and recommended methods for calculating dose and estimating exposure effects. These organizations recognize that the use of dose-to-risk conversion factors based on the linear no-threshold hypothesis to estimate stochastic effects (latent cancer fatalities, nonfatal cancer incidence, and hereditary effects) from very low exposures to ionizing radiation may overestimate the actual risk. DOE also recognizes that experts in the scientific community are reviewing the merits of the linear no-threshold hypothesis. However, because of uncertainties in the low dose/low dose rate region of the dose-health effect curve, the dose-to-risk conversion factors recommended by the National Council on Radiation Protection and Measurements (DIRS 101856-NCRP 1993) and the International Commission on Radiological Protection (DIRS 101836-ICRP 1991) for estimating the risk from exposure to ionizing radiation are based on the linear no-threshold hypothesis. These organizations have been careful to point out over the years that the use of the linear no-threshold-derived risk factors will provide reasonable assurance that the actual effect will not be underestimated. For these reasons, the linear no-threshold hypothesis has been accepted for use by federal agencies—including DOE, the Environmental Protection Agency, and the Nuclear Regulatory Commission—for radiation protection and for estimating risk from exposure to ionizing radiation.

Although human response to radiation exposure has been extensively studied for over 75 years, there is still much that is unknown about effects of chronic exposure to low level radiation. This is why, in 1998, the Environmental